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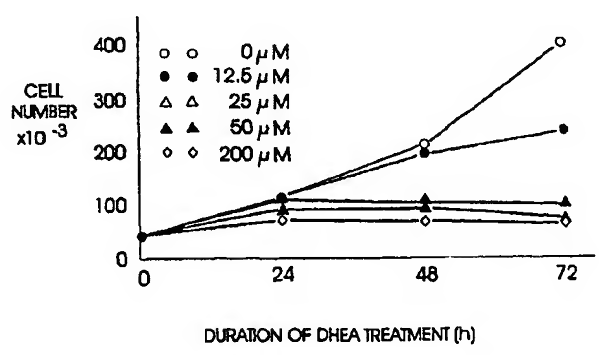
(54) Title: COMPOSITIONS, FORMULATIONS AND KIT WITH ANTI-SENSE OLIGONUCLEOTIDE AND ANTI-INFLAMMATORY STEROID AND/OR UBIQUINONE FOR TREATMENT OF RESPIRATORY AND LUNG DISEASE



(57) Abstract: A pharmaceutical composition and formulations comprise preventative, prophylactic or therapeutic amounts of an oligo(s) anti-sense to a specific gene(s) or its corresponding mRNA(s), and a glucocorticoid and/or non-glucocorticoid steroid or a ubiquinone or their salts. The agents, composition and formulations are used for treatment of ailments associated with impaired respiration, bronchoconstriction, lung allergy(ies) or inflammation, and abnormal levels of adenosine, adenosine receptors, sensitivity to adenosine, lung surfactant and ubiquinone, such as pulmonary fibrosis, vasoconstriction, inflammation, allergies, allergic rhinitis, asthma, impeded respiration, lung pain, cystic fibrosis, bronchoconstriction, COPD, RDS, ARDS, cancer, and others. The present treatment is effectively administered by itself for conditions without known therapies, as a substitute for therapies exhibiting undesirable side effects, or in combination with other treatments, e.g. before, during and after other respiratory system therapies, radiation, chemotherapy, antibody therapy and surgery, among others. Each of the agents of this invention may be administered directly into the respiratory system so that they gain direct access to the lungs, or by other effective routes of administration. A kit comprises a delivery device, the agents and instructions for its use.

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COMPOSITIONS, FORMULATIONS & KIT WITH ANTI-SENSE OLIGONUCLEOTIDE & ANTI-INFLAMMATORY STEROID AND/OR UBIQUINONE FOR TREATMENT OF RESPIRATORY & LUNG DISEASE

BACKGROUND OF THE INVENTION

Field of the Invention

This invention concerns itself with compositions, formulations and kits employed for the administration of active agents that are effective for treating respiratory and pulmonary diseases including bronchoconstriction, impaired airways, decreased lung surfactant, asthma, rhinitis, acute respiratory distress syndrome (ARDS), infantile or maternal RDS, chronic obstructive pulmonary disease (COPD), allergies, impeded respiration, lung pain, cystic fibrosis (CF), infectious diseases, cancers such as leukemias, lung and colon cancer, and the like, and diseases whose secondary effects afflict the lungs. The active agents, anti-sense oligonucleotides and steroid agents and/or ubiquinones may be administered preventatively, prophylactically or therapeutically as a single therapy or in conjunction with other therapies.

Background of the Invention

Respiratory ailments, associated with a variety of diseases and conditions, are extremely common in the general population, and more so in certain ethnic groups, such as African Americans. In some cases they are accompanied by inflammation, which aggravates the condition of the lungs. Asthma, for example, is one of the most common diseases in industrialized countries. In the United States it accounts for about 1% of all health care costs. An alarming increase in both the prevalence and mortality of asthma over the past decade has been reported, and asthma is predicted to be the preeminent occupational lung disease in the next decade. While the increasing mortality of asthma in industrialized countries could be attributable to the depletion reliance upon beta agonists in the treatment of this disease, the underlying causes of asthma remain poorly understood. Respiratory and pulmonary diseases such as asthma, allergic rhinitis, Acute Respiratory Distress Syndrome (ARDS), including that occurring in pregnant mothers and in premature born infants, pulmonary fibrosis, cystic fibrosis (CF), chronic obstructive pulmonary disease (COPD), and cancer, among others, are common diseases in industrialized countries. In the United States alone they account for extremely high health care costs, and their incidence has recently been increasing at an alarming rate, both in terms of prevalence, morbidity and mortality. In spite of this, their underlying causes still remain poorly understood.

Asthma is a condition characterized by variable, in many instances reversible obstruction of the airways. This process is associated with lung inflammation and in some cases lung allergies. Many patients have acute episodes referred to as "asthma attacks," while others are afflicted with a chronic condition. The asthmatic process is triggered in some cases by inhalation of antigens by hypersensitive subjects. This condition is generally referred to as "extrinsic asthma." Other asthmatics have an intrinsic predisposition to the condition, which is thus referred to as "intrinsic asthma," and may be comprised of conditions of different origin, including those mediated by the adenosine receptor(s), allergic conditions mediated by an immune IgE-mediated response, and others. All asthmas have a group of symptoms, which are characteristic of this condition: bronchoconstriction, lung inflammation and decreased lung surfactant. Existing bronchodilators and anti-inflammatories are currently commercially available and are prescribed for the treatment of asthma. The most common anti-inflammatories, corticosteroids, have considerable side effects but are commonly prescribed nevertheless. Most of the drugs available for the treatment of asthma are, more importantly, barely effective in a small number of patients.

Acute Respiratory Distress Syndrome (ARDS), or stiff lung, shock lung, pump lung and congestive atelectasis, is believed to be caused by fluid accumulation within the lung which, in turn, causes the lung to stiffen. The condition is triggered within 48 hours by a variety of processes that injure the lungs such as trauma, head injury, shock, sepsis, multiple blood transfusions, medications, pulmonary embolism, severe pneumonia, smoke inhalation, radiation, high altitude, near drowning, and others. In general, ARDS occurs as a medical emergency and may be caused by other conditions that directly or indirectly cause the blood vessels to "leak" fluid into the lungs. In ARDS, the ability of the lungs to expand is severely decreased and produces extensive damage to the air sacs and lining or endothelium of the lung. ARDS' most common symptoms are labored, rapid breathing, nasal flaring,

cyanosis blue skin, lips and nails caused by lack of oxygen to the tissues, breathing difficulty, anxiety, stress, tension, joint stiffness, pain and temporarily absent breathing. ARDS is commonly diagnosed by testing for symptomatic signs, for example by a simple chest auscultation or examination with a stethoscope that may reveal abnormal symptomatic breath sounds. A preliminary diagnosis of ARDS may be confirmed with chest X-rays and the measurement of arterial blood gas. In some cases ARDS appears to be associated with other diseases, such as acute myelogenous leukemia, with acute tumor lysis syndrome (ATLS) developed after treatment with, e.g. cytosine arabinoside. In general, however, ARDS appears to be associated with traumatic injury, severe blood infections such as sepsis, or other systemic illness, high dose radiation therapy and chemotherapy, and inflammatory responses which lead to multiple organ failure, and in many cases death. In premature babies ("premies"), the lungs are not quite developed and, therefore, the fetus is in an anoxic state during development. Moreover, lung surfactant, a material critical for normal respiration, is generally not yet present in sufficient amounts at this early stage of life; however, premies often hyper-express the adenosine A_1 receptor and/or underexpress the adenosine A_{2a} receptor and are, therefore, susceptible to respiratory problems including bronchoconstriction, lung inflammation and ARDS, among others. When Respiratory Distress Syndrome (RDS) occurs in premies, it is an extremely serious problem. Preterm infants exhibiting RDS are currently treated by ventilation and administration of oxygen and surfactant preparations. When premies survive RDS, they frequently develop bronchopulmonary dysplasia (BPD), also called chronic lung disease of early infancy, which is often fatal.

The systemic administration of adenosine was found useful for treating SVT, and as a pharmacologic means to evaluate cardiovascular health via an adenosine stress test commonly administered by hospitals and by doctors in private practice. Adenosine administered by inhalation, however, is known to cause bronchoconstriction in asthmatics, possibly due to mast cell degranulation and histamine release, effects which have not been observed in normal subjects. Adenosine infusion has caused respiratory compromise, for example, in patients with COPD. As a consequence of the untoward side effects observed in many patients, caution is recommended in the prescription of adenosine to patients with a variety of conditions, including obstructive lung disease, emphysema, bronchitis, etc, and complete avoidance of its administration to patients with or prone to bronchoconstriction or bronchospasm, such as asthma. In addition, the administration of adenosine must be discontinued in any patient who develops severe respiratory difficulties. It would be of great help if a formulation were to be made available for joint use when adenosine administration is required.

Allergic rhinitis afflicts one in five Americans, accounting for an estimated $4 to 10 billion in health care costs each year, and occurs at all ages. Because many people mislabel their symptoms as persistent colds or sinus problems, allergic rhinitis is probably underdiagnosed. Typically, IgE combines with allergens in the nose to produce chemical mediators, induction of cellular processes, and neurogenic stimulation, causing an underlying inflammation. Symptoms include nasal congestion, discharge, sneezing, and itching, as well as itchy, watery, swollen eyes. Over time, allergic rhinitis sufferers often develop sinusitis, otitis media with effusion, and nasal polyposis that may exacerbate asthma, and is associated with mood and cognitive disturbances, fatigue and irritability. Degranulation of mast cells results in the release of preformed mediators that interact with various cells, blood vessels, and mucous glands to produce the typical rhinitis symptoms. Most early- and late-phase reactions occur in the nose after allergen exposure. The late-phase reaction is seen in chronic allergic rhinitis, with hypersecretion and congestion as the most prominent symptoms. Repeated exposure may cause hypersensitivity to one or many allergens. Sufferers may also become hyperreactive to non-specific triggers, such as cold air or strong odors. Non-allergic rhinitis may be induced by infections, such as viral infections, or associated with nasal polyps, as occurs in patients with aspirin idiosyncrasy. In addition, pregnancy, hypothyroidism, and exposure to occupational factors or medications may cause rhinitis, as well. NARES syndrome, a non-allergic type of rhinitis associated with eosinophils in nasal secretions, typically occurs in middle-aged individuals and is accompanied by loss of smell. Saline is often recommended to improve nasal stuffiness, sneezing, and congestion, since saline sprays usually relieve mucosal irritation or dryness associated with various nasal conditions, minimize mucosal atrophy, and dislodge encrusted or thickened mucus, while causing no side effects, and may be used freely in pregnant patients. In addition, if used immediately before intra-nasal corticosteroid dosing, saline helps prevent local irritation. Anti-histamines often serve as a primary therapy. Terfenadine and astemizole, two non-sedating anti-histamines, however, have been associated with a ventricular arrhythmia known as Torsades de Points, usually in interaction with other medications such as ketoconazole and erythromycin, or secondary to an underlying cardiac problem. Up to date, loratadine, another nonsedating anti-histamine, and cetirizine have not been associated with

serious adverse cardiovascular events. Cetirizine's most common side effect, however, is drowsiness. Claritin, for example, may be effective in relieving sneezing, runny nose, and nasal, ocular and palatal itching in a low percentage of patients, although not approved for this indication or asthma. Anti-histamines are typically combined with a decongestant to help relieve nasal congestion. Sympathomimetic medications are used as vasoconstrictors and decongestants, the most common being pseudoephedrine, phenylpropanolamine and phenylephrine. These agents, however, often cause hypertension, palpitations, tachycardia, restlessness, insomnia and headache. Topical decongestants are recommended for limited periods because their overuse results in nasal dilatation. Anti-cholinergic agents, such as cromolyn, have a role in patients with significant rhinorrhea or in specific cases, such as "gustatory rhinitis", which is usually associated with ingestion of spicy foods, and have been used on the common cold. Sometimes the Cromolyn spray produces sneezing, transient headache, and even nasal burning. Topical and nasal spray corticosteroids such as Vancenase are effective agents in the treatment of rhinitis, especially for symptoms of congestion, sneezing and runny nose, but sometimes may cause irritation, stinging, burning, sneezing, and local bleeding. Topical steroids are generally more effective than Cromolyn sodium, particularly in the treatment of NARES, but side effects sometimes limit their usefulness. Immunotherapy, while expensive and inconvenient, often provides substantial benefits, especially the use of drugs such as blocking antibodies, and those that alter cellular histamine release, and result in decreased IgE. Presently available treatments, such as propranolol, verapamil, and adenosine, may help to minimize symptoms. Verapamil is most commonly used but it has several shortcomings, since it causes or exacerbates systemic hypotension, congestive heart failure, bradyarrhythmias, and ventricular fibrillation. Verapamil, however, crosses the placenta and has been shown to cause fetal bradycardia, heart block, depression of contractility, and hypotension. Adenosine has several advantages over verapamil, including rapid onset, brevity of side effects, theoretical safety, and probable lack of placental transfer, but may not be administered to a variety of patients.

Chronic obstructive pulmonary disease (COPD) is characterized by airflow obstruction that is generally caused by chronic bronchitis, emphysema, or both. Emphysema is characterized by abnormal permanent enlargement of the air spaces distal to the terminal bronchioles, accompanied by destruction of their walls and without obvious fibrosis. Chronic bronchitis is characterized by chronic cough, mucus production, or both, for at least three months for at least two successive years where other causes of chronic cough have been excluded. COPD characteristically affects middle aged and elderly people, and is one of the leading causes of morbidity and mortality worldwide. In the United States it affects about 14 million people and is the fourth leading cause of death, and both its morbidity and mortality rates are still rising. This contrasts with the decline over the same period in age-adjusted mortality from all causes, and from cardiovascular diseases. COPD, however, is preventable, since it is believed that its main cause is exposure to cigarette smoke. The disease is rare in lifetime non-smokers, in whom exposure to environmental tobacco smoke will explain at least some of the airways obstruction. Other proposed etiological factors include airway hyper-responsiveness or hypersensitivity, ambient air pollution, and allergy. The airflow obstruction in COPD is usually progressive in people who continue to smoke. This results in early disability and shortened survival time. Stopping smoking reverts the decline in lung function to values for non-smokers. Many patients will use medication chronically for the rest of their lives, with the need for increased doses and additional drugs during exacerbations. Amongst the currently available treatments for COPD, short-term benefits were found, as opposed to long term effects on progression, from anti-cholinergic drugs, $\beta 2$ adrenergic agonists, and oral steroids. The effects of anti-cholinergic drugs and $\beta 2$ adrenergic agonists, however, are not seen in all people with COPD, and the two agents combined are only slightly more effective than either alone. Their adverse effects and the need for frequent monitoring of blood concentrations limit the usefulness of theophyllines. There is no evidence that anti-cholinergic agents affect the decline in lung function, and mucolytics have been shown to reduce the frequency of exacerbations but with a possible deleterious effect on lung function. The long-term effects of $\beta 2$ adrenergic agonists, oral corticosteroids, and antibiotics have not yet been evaluated, and up to the present time no other drug has been shown to affect the progression of the disease or survival. Thus, there is very little currently available to alleviate symptoms of COPD, prevent exacerbations, preserve optimal lung function, and improve daily living activities an quality of life. Thus, there is very little currently available to alleviate symptoms of COPD, prevent exacerbations, preserve optimal lung function, and improve daily living activities an quality of life.

Interstitial lung disease (ILD), interstitial pulmonary fibrosis, or simply pulmonary fibrosis are terms that include more than 130 chronic lung disorders that affect the lung in at least three ways: lung tissue is damaged in some known or unknown way, walls of the air sacs in the lung become inflamed, and scarring or fibrosis begins in

the interstitium (or tissue between the air sacs), and the lung becomes stiff. Breathlessness during exercise may be one of the first symptoms of these diseases, and a dry cough may be present. Neither the symptoms nor X rays are often sufficient to tell apart different types of pulmonary fibrosis. Some pulmonary fibrosis patients have known causes and some have unknown or idiopathic causes. Interstitial lung disease (or pulmonary fibrosis) is named after he tissue between the air sacs of the lungs because this is the tissue affected by fibrosis or scarring. The course of this disease is generally unpredictable. If they progress the lung tissue thickens and becomes stiff, breathing becomes more difficult and demanding, and inflammation occurs. Some people may need oxygen therapy as part of their treatment.

Microbial infections are extremely common, and may be caused by viruses, bacteria, and other forms of life. They are generally treated with anti-viral agents, antibiotics, and other specific therapeutic drugs. However, some infectiouns may either go unnoticed, or produce secondary effects such as inflammation, pulmonary and airway obstructions, and other pulmonary ailments.

Cancer is one of the most prevalent and feared diseases of our times. It generally results from the carcinogenic transformation of normal cells of different epithelia. Two of the most damaging characteristics of carcinomas and other types of malignancies are their uncontrolled growth and their ability to create metastases in distant sites of the host, particularly a human host. It is usually these distant metastases that cause serious consequences to the host, since frequently the primary carcinoma may be, in most cases, removed by surgery. The treatment of cancer presently relies on surgery, irradiation therapy and systemic therapies such as chemotherapy, different immunity-boosting medicines and procedures, hyperthermia and systemic, radioactively labeled monoclonal antibody treatment, immunotoxins and chemotherapeutic drugs.

Adenosine may constitute an important mediator in the lung for various diseases, including bronchial asthma, COPD, CF, RDS, rhinitis, pulmonary fibrosis, and others. Its potential role was suggested by the finding that asthmatics respond favorably to aerosolized adenosine with marked bronchoconstriction whereas normal individuals do not. An asthmatic rabbit animal model, the dust mite allergic rabbit model for human asthma, responded in a similar fashion to aerosolized adenosine with marked bronchoconstriction whereas non-asthmatic rabbits showed no response. More recent work with this animal model suggested that adenosine-induced bronchoconstriction and bronchial hyperresponsiveness in asthma may be mediated primarily through the stimulation of adenosine receptors. Adenosine has also been shown to cause adverse effects, including death, when administered therapeutically for other diseases and conditions in subjects with previously undiagnosed hyper reactive airways.

Adenosine is a purine involved in intermediary metabolism, and may constitute an important natural mediator of many of diseases. Adenosine plays a unique role in the body as a regulator of cellular metabolism. It can raise the cellular level of AMP, ADP and ATP which are the energy intermediates of the cell. Adenosine can stimulate or down regulate the activity of adenylate cyclase and hence regulate cAMP levels. cAMP, in turn, plays a role in neurotransmitter release, cellular division and hormone release. Adenosine's major role appears to be to act as a protective injury autocoid. In any condition in which ischemia, low oxygen tension or trauma occurs adenosine appears to play a role. Defects in synthesis, release, action and/or degradation of adenosine have been postulated to contribute to the over activity of the brain excitatory amino acid neurotransmitters, and hence various pathological states. Adenosine has also been implicated as a primary determinant underlying the symptoms of bronchial asthma and other respiratory diseases, the induction of bronchoconstriction and the contraction of airway smooth muscle. Moreover, adenosine causes bronchoconstriction in asthmatics but not in non-asthmatics. Other data suggest the possibility that adenosine receptors may also be involved in allergic and inflammatory responses by reducing the hyperactivity of the central dopaminergic system. It has been postulated that the modulation of signal transduction at the surface of inflammatory cells influences acute inflammation. Adenosine is said to inhibit the production of super-oxide by stimulated neutrophils. Recent evidence suggests that adenosine may also play a protective role in stroke, CNS trauma, epilepsy, ischemic heart disease, coronary by-pass, radiation exposure and inflammation. Overall, adenosine appears to regulate cellular metabolism through ATP, to act as a carrier for methionine, to decrease cellular oxygen demand and to protect cells from ischemic injury. Adenosine is a tissue hormone or inter-cellular messenger that is released when cells are subject to ischemia, hypoxia, cellular stress, and increased workload, and or when the demand for ATP exceeds its supply. Adenosine is a purine and its formation is directly linked to ATP catabolism. It appears to modulate an array of physiological processes including vascular tone, hormone action, neural function, platelet aggregation and lymphocyte differentiation. It also may play a role in

DNA formation, ATP biosynthesis and general intermediary metabolism. It is suggested that it regulates the formation of cAMP in the brain and in a variety of peripheral tissues. Adenosine regulates cAMP formation through two receptors A_1 and A_2. Via A_1 receptors, adenosine reduces adenylate cyclase activity, while it stimulates adenylate cyclase at A_2 receptors. The adenosine A_1 receptors are more sensitive to adenosine than the A_2 receptors. The CNS effects of adenosine are generally believed to be A_1-receptor mediated, where as the peripheral effects such as hypotension, bradycardia, are said to be A_2 receptor mediated.

Anti-sense oligonucleotides have received considerable theoretical consideration as potential useful pharmacological agents in human disease. One important impediment to their effective application has been a difficulty in finding an appropriate route of administration to deliver them to their site of action. The administering of anti-sense oligonucleotides directly to specific regions of the brain, for example, necessarily has limited clinical utility due to its invasive nature. Finding practical and effective applications for these agents in actual models of human disease have been few and far between, particularly because they had to be administered in large doses. The systemic administration of anti-sense oligonucleotides as pharmacological agents, such as oral and parenteral administration, has been found to have also significant problems, including the inherent difficulty in targeting specific tissues due to their dilution in the circulatory system. The bioavailability of orally administered anti-sense oligonucleotides is very low, of the order of less than about 5%. The present inventor previously pioneered the administration of oligonucleotides via the respiratory system, and successfully treated asthma, bronchoconstriction and lung inflammation and allergies, and applied the technology to the treatment of other conditions. The route of administration, thus was found to be of importance, particularly for treating localized conditions. As described in more detail below, the lung is an excellent target for the direct administration of anti-sense oligonucleotides and provides a non-invasive and a tissue-specific route. The respiratory system, and in particular the lung, as the ultimate port of entry into the organism provides an excellent route of administration for anti-sense oligonucleotides. This is so not only for the treatment of lung disease, but also when utilizing the lung as a means for delivery, particularly because of its non-invasive and tissue-specific nature. Thus, local delivery of anti-sense oligos directly to the target tissue enables an optimal delivery for the therapeutic use of these compounds. Fomivirsen (ISIS 2922) is an example of a local drug delivery into the eye to treat cytomegalovirus (CMV) retinitis, for which a new drug application has been filed by ISIS. The administration of a drug through the lung offers the further advantage that inhalation is non-invasive whereas direct injection into the vitreous of the eye is invasive.

Steroids are naturally occurring compounds of varied activities. In mammals, they serve different functions, some being associated with sexual cycles and reproduction, others withregulation of endogenous levels of various compounds. Some of these have anti-inflammatory activity,

Steroid hormones are potent chemical messengers that exert dramatic effects on cell differentiation, homeostasis, and morphogenesis. These molecules diverse in structure share a mechanistically similar mode of action. The effector molecules diffuse across cellular membranes and bind to specific high affinity receptors in the target cell nuclei. This interaction results in the conversion of an inactive receptor to one that can interact with the regulatory regions of target genes and modulate the rate of transcription of specific gene sets. Upon ligand binding, these receptors generate both rapid and long lasting responses. Steroids can act through two basic mechanisms: genomic and non-genomic. The classical genomic action is mediated by specific intracellular receptors, whereas the primary target for the non-genomic one is the cell membrane. Many clinical symptoms seem to be mediated through the non-genomic route. Furthermore, membrane effects of steroid and other factors can interfere with the intranuclear receptor system inducing or repressing steroid-and receptor-specific genomic effects. These signalling pathways may lead to unexpected hormonal or anti-hormonal effects in patients treated with certain drugs.

Steroid receptors are members of a large family of nuclear transcription factors that regulate gene expression by binding to their cognate steroid ligands, to the specific enhancer sequences of DNA (steroid response elements) and to the basic transcription machinery. Steroid receptors are basically localized in the nucleus, regardless of hormonal status, and considerable-amounts of unliganded steroid receptors may be present in the cytoplasm of target cells in exceptional cases Most steroid receptors are phosphoproteins, which are further phosphorylated after ligand binding. The role of phosphorylation in receptor transaction is complex and may not be uniform to all steroid receptors. However, phosphorylation and/or dephosphorylation is believed to be a key event regulating the transcriptional activity of steroid receptors. Steroid receptor activities can be affected by the amount of steroid receptor in the cell nuclei, which is modified by the rate of transcription and translation of the steroid receptor gene as well as by proteolysis of the steroid receptor protein. There is an auto- and heteroregulation of

receptor levels. Some of the steroid receptors appear to bind specific protease inhibitors and exhibit protease activity. Some steroid receptors are expressed as two or more isoforms, which may have different effects on transcription. Receptor isoforms are different translation or transcription products of a single gene. Isoform A of the progesterone receptor is a truncated form of PR isoform B originating from the same gene, but it is able to suppress not only the gene enhancing activity of PR-B but also that of other steroid receptors.

Before hormone binding, the receptors are part of a complex with multiple chaperones which maintain the receptor in its steroid binding conformation. Following hormone binding, the complex dissociates and the receptors bind to steroid response elements in chromatin. Regulation of gene expression by hormones involves an interaction of the DNA-bound receptors with other sequence-specific transcription factors and with the general transcription factors, which is partly mediated by co-activators and co-repressors. The specific array of cis regulatory elements in a particular promoter/enhancer region, as well as the organization of the DNA sequences in nucleosomes, specifies the network of receptor interactions. Depending on the nature of these interactions, the final outcome can be induction or repression of transcription.

Adrenocortical hormones are steroid hormones classified as glucocorticoids, mineralocorticoids and sex hormones. Glucocorticoids moderate the metabolism of sugar, fat and protein and may raise the resistance to the adverse stimulation of the body by these substances. Many of the clinically useful steroids belong to this group, including cortisone, hydrocortisone, and their pharmaceutical derivatives such as prednisone, dexamethasone, etc. Although glucocorticoids were originally so called because of their infuence on glucose metabolism, they are currently defined as steroids that exert their effects by binding to specific cytosolic receptors that mediate the actions of these hormones. These glucocorticoid receptors are present in virtually all tissues, and glucocorticoid-receptor interactions are responsible for most of the known effects of these steroids. Alteration in the structure of these glucocorticoids has led to the development of synthetic compounds with greater glucocorticoid activity. The increased activity of these compounds is due to increased affinity for the glucocorticoid receptors and/or delayed plasma clearance, which increases tissue exposure. In addition, many of these synthetic glucocorticoids evidence negligible mineralocortocoid effects and thus do not result in sodium retention, hypertension, and/or hypokalemia. Glucocorticoid action is initiated by entry of the steroid into the cell and binding to the cytosolic glucocorticoid receptor proteins. After binding, activated hormone-receptor complexes enter the nucleus and interact with nuclear chromatin acceptor sites. These events cause the expression of specific genes and the transcription of specific mRNAs. The resulting proteins affect the response to the glucocorticoids, which may be inhibitory or stimulatory depending on the specific tissue affected. Although glucocorticoid receptors are similar in many tissues, the proteins synthesized vary widely and are the result of expression of specific genes in different cell types.

Mineralocorticoids and sex hormones are non-glucocorticoid steroids, e.g., adrenal androgens. Adrenal androgens, such as androstenediones, dehydroepiandrosterone (DHEA), and DHEA sulfate function as precursors for the peripheral conversion to androgenic hormones, such as testosterone and dihydrotestosterone. DHEA sulfate secreted by the adrenal undergoes limited conversion to DHEA, and both the peripheral DHEA and DHEA secreted by the adrenal cortex may be further converted in peripheral tissues to androstenedione, the immediate precursor of the active androgens. Dehydroepiandrosterone (DHEA) is a naturally occurring steroid secreted by the adrenal cortex with apparent chemoprotective properties. Epidemiological studies have shown that low endogenous levels of DHEA correlate with increased risk of developing some forms of cancer, such as pre-menopausal breast cancer in women and bladder cancer in both sexes. The ability of DHEA and DHEA analogues, e.g. dehydroepiandrosterone sulfate (DHEA-S), to inhibit carcinogenesis is believed to result from their uncompetitive inhibition of the activity of the enzyme glucose 6-phosphate dehydrogenase (G6PDH). G6PDH is the rate limiting enzyme of the hexose monophosphate pathway, a major source of intracellular ribose-5-phosphate and NADPH. Ribose-5 phosphate is a necessary substrate for the synthesis of both ribo- and deoxyribonucleotides required for the synthesis of RNA and DNA. NADPH is a cofactor also involved in nucleic acid biosynthesis and the synthesis of hydroxmethylglutaryl Coenzyme A reductase (HMG CoA reductase). HMG CoA reductase is an unusual enzyme that requires two moles of NADPH for each mole of product, mevalonate, produced. Thus, it appears that HMG CoA reductase would be ultrasensitive to DHEA-mediated NADPH depletion, and that DHEA-treated cells would rapidly show the depletion of intracellular pools of mevalonate. Mevalonate is required for DNA synthesis, and DHEA arrests human cells in the G1 phase of the cell cycle in a manner closely resembling that of the direct HMG CoA. Because G6PDH produces mevalonic acid used in cellular processes such as protein isoprenylation and the synthesis of dolichol, a precursor for glycoprotein biosynthesis, DHEA inhibits carcinogenesis by depleting mevalonic acid and thereby

inhibiting protein isoprenylation and glycoprotein synthesis. Mevalonate is a central precursor for the synthesis of cholesterol, as well as for the synthesis of a variety of non-sterol compounds involved in post-translational modification of proteins, such as farnesyl pyrophosphate and geranyl pyrophosphate. Mevalonate is also a central precursor for the synthesis of dolichol, a compound that is required for the synthesis of glycoproteins involved in cell-to-cell communication and cell structure. Mevalonate is also central to the manufacture of ubiquinone, an anti-oxidant with an established role in cellular respiration. It has long been known that patients receiving steroid hormones of adrenocortical origin at pharmacologically appropriate doses show increased incidence of infectious disease.

DHEA, also known as 3β-hydroxyandrost-5-en-17-one or dehydroepiandrosterone, is a 17-ketosteroid which is quantitatively one of the major adrenocortical steroid hormones found in mammals. Although DHEA appears to serve as an intermediary in gonadal steroid synthesis, the primary physiological function of DHEA has not been fully understood. It has been known, however, that levels of this hormone begin to decline in the second decade of life, reaching 5% of the original level in the elderly.) Clinically, DHEA has been used systemically and/or topically for treating patients suffering from psoriasis, gout, hyperlipemia, and it has been administered to post-coronary patients. In mammals, DHEA has been shown to have weight optimizing and anti-carcinogenic effects, and it has been used clinically in Europe in conjunction with estrogen as an agent to reverse menopausal symptoms and also has been used in the treatment of manic depression, schizophrenia, and Alzheimer's disease. DHEA has also been used clinically at 40 mg/kg/day in the treatment of advanced cancer and multiple sclerosis. Mild androgenic effects, hirsutism, and increased libido were the side effects observed. These side effects can be overcome by monitoring the dose and/or by using analogues. The subcutaneous or oral administration of DHEA to improve the host's response to infections is known, as is the use of a patch to deliver DHEA. DHEA is also known as a precursor in a metabolic pathway that ultimately leads to more powerful agents that increase immune response in mammals. That is, DHEA acts as a biphasic compound: it acts as an immuno-modulator when converted to androstenediol or androst-5-ene-3β,17β-diol (βAED), or androstenetriol or androst-5-ene-3β,7β,17β-triol (βAET). However, in vitro DHEA has certain lymphotoxic and suppressive effects on cell proliferation prior to its conversion to βAED and/or βAET. It is, therefore, believed that the superior immunity enhancing properties obtained by administration of DHEA result from its conversion to more active metabolites.

Adequate ubiquinone levels have been found to be essential for maintaining proper cardiac function, and the administration of exogenous ubiquinone has recently been shown to have beneficial effect in patients with chronic heart failure. Ubiquinone depletion has been observed in humans and animals treated with lovastatin, a direct HMG CoA reductase inhibitor. Such lovastatin-induced depletion of ubiquinone has been shown to lead to chronic heart failure, or to a shift from low heart failure into life-threatening high grade heart failure. DHEA, unlike lovastatin, inhibits HMG CoA reductase indirectly by inhibiting G6PDH and depleting NADPH, a required cofactor for HMG CoA reductase. However, DHEA's indirect inhibition of HMG CoA reductase suffices to deplete intracellular mevalonate. This effect adds to the depletion of ubiquinone, and may result in chronic heart failure following long term usage. Thus, although DHEA was once considered a safe drug, it is now predicted that with long term administration of DHEA or its analogues, chronic heart failure may occurs as a complicating side effect. Further, some analogues of DHEA produce this side effect to a greater extent because, in general, they are more potent inhibitors of G6PDH than DHEA.

A handful of medicaments have been used for the treatment of respiratory diseases and conditions, although in general they all have limitations. Amongst them are corticoid steroids with glucocorticoid activity, leukotriene inhibitors, anti-cholinergic agents, anti-histamines, oxygen therapy, theophyllines, and mucolytics. Corticosteroids are the ones with the most widespread use in spite of their well documented side effects. Most of the available drugs are nevertheless effective in a small number of cases, and not at all when it comes to the treatment of asthma. No treatments are currently available for many of the other respiratory diseases. Theophylline, an important drug in the treatment of asthma, is a known adenosine receptor antagonist that was reported to eliminate adenosine-mediated bronchoconstriction in asthmatic rabbits. A selective adenosine A_1 receptor antagonist, 8-cyclopentyl-1, 3-dipropylxanthine (DPCPX) was also reported to inhibit adenosine-mediated bronchoconstriction and bronchial hyperresponsiveness in allergic rabbits. The therapeutic and preventative applications of currently available adenosine A_1 receptor-specific antagonists are, nevertheless, limited by their toxicity. Theophylline, for example, has been widely used in the treatment of asthma, but is associated with frequent, significant toxicity resulting from its narrow therapeutic dose range. DPCPX is far too toxic to be useful clinically. The fact that, despite decades of

extensive research, no specific adenosine receptor antagonist is available for clinical use attests to the general toxicity of these agents.

For many years, two classes of compounds have dominated the treatment of asthma: corticosteroids having glucocorticoid activity and bronchodilators. Examples of corticosteroids are beclomethasone and corticoid 21-sulfopropionates. Examples of a bronchodilator are an older $\beta 2$ adrenergic agonist such as albuterol, and a newer one such as salmeterol. In general, when glucocorticosteroids are taken daily either by inhalation or orally, they attenuate inflammation. The $\beta 2$ adrenergic agonists, on the other hand, primarily alleviate bronchoconstriction. Whereas glucocorticosteroids are not useful in general for acute settings, bronchodilators are used in acute care, such as in the case of asthma attacks. At the present time, many asthma patients require daily use of both types of agents, a glucocorticosteroid to contain pulmonary inflammation, and a bronchodilator to alleviate bronchoconstriction. More recently, fluticasone propionate, a corticosteroid was combined with $\beta 2$ adrenergic agonists in one therapeutic formulation said to have greater efficiency in the treatment of asthma. However, glucocorticosteriods, particularly when taken for prolonged periods, have extremely deleterious side effects that, although somewhat effective, make their chronic use undesirable, particularly in children.

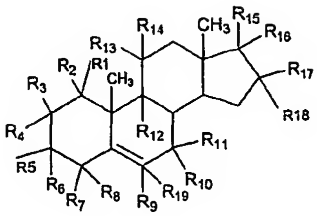
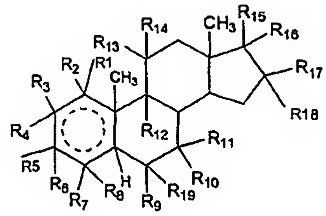
Clearly, there exists a well defined need for novel and effective therapies for treating respiratory, lung and cancer ailments that cannot presently be reasonably treated, or at least for which no therapies are available that are effective and devoid of significant detrimental side effects. Moreover, there is a definite need for treatments that have prophylactic and therapeutic applications, and require low amounts of active agents, and are less costly and less prone to detrimental side effects. Furthermore, it is readily apparent that anti-inflammatory steroids ("AIS"), including adrenal androgens, androgens and their derivatives, etc, corticoid and non-glucocorticoid steroids, ubiquinones and their respective salts, as well as specifically targeted anti-sense oligonucleotides (oligos) are each alone useful for the treatment of respiratory, lung, and cancer. This patent provides their joint effects that evidence unexpected superior results over each agent alone.

SUMMARY OF THE INVENTION

The present invention generally relates to a pharmaceutical or veterinary composition, comprising a pharmaceutically or veterinarily acceptable carrier or diluent, and first and second active agents.

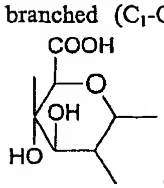
The first active agent comprises an oligonucleotide(s) (oligo(s)) that may be anti-sense to one or more targets, and a second active agent comprising anti-inflammatory steroids ("AIS") and/or a ubiquinone, in amounts effective for alleviating airway, lung, and microbial and/or cancer diseases associated with, for example, bronchoconstriction, impeded respiration, dispnea, emphysema, asthma, COPD, ARDS, CF, allergic rhinitis, pulmonary hypertension and fibrosis, lung inflammation, allergies, surfactant depletion or hyposecretion, and cancers, among others. The oligo preferably contains about 0 to about 15% adenosine (A) and is anti-sense to the initiation codon, the coding region, the 5'-end or the 3'-end genomic flanking regions, the 5' or 3' intron-exon junctions, or regions within 2 to 10 nucleotides of the junctions of at least one gene regulating or encoding a target polypeptide associated with lung or airway dysfunction or cancer, or that is anti-sense to the corresponding mRNA, and the composition may comprise also combinations or mixtures of the oligos. The targets are typically molecules associated with airway disease, cancer, etc., such as transcription factors, stimulating and activating peptide factors, cytokines, cytokine receptors, chemokines, chemokine receptors, adenosine receptors, bradykinin receptors, endogenously produced specific and non-specific enzymes, immunoglobulins and antibodies, antibody receptors, central nervous system (CNS) and peripheral nervous and non-nervous system receptors, CNS and peripheral nervous and non-nervous system peptide transmitters, adhesion molecules, defensins, growth factors, vasoactive peptides and receptors, binding proteins, and malignancy associated proteins, among others. In one embodiment the first active agent comprises a nucleic acid wherein the oligo is anti-sense to more than one target. These are called within the four corners of this patent multiple target anti-sense oligonucleotides or MTAs.

The second active agent comprises an anti-inflammatory steroid such as an adrenal androgen of the chemical formula

 (Ia) or  (Ib)

wherein R_1, R_2, R_3, R_4, R_6, R_7, R_8, R_9, R_{10}, R_{12}, R_{13}, R_{14} and R_{19} are independently H, OR, halogen, $(C_1\text{-}C_{10})$ alkyl, $(C_1\text{-}C_{10})$ alkene, $(C_1\text{-}C_{10})$ alkyne, $(C_1\text{-}C_{10})$ alkoxy, or two or more of R_1, R_2, R_3, R_4, R_6, R_7, R_8, R_9, R_{10}, R_{12}, R_{13}, R_{14} and R_{19} can be linked by combination of the atoms of C, O, N, S, P and Si to form a 3 to 15 member ring(s), in the α- and/or β- configuration;

R_5, R_6, R_{10}, and R_{11} are independently OH, SH, H, halogen, pharmaceutically acceptable ester, pharmaceutically acceptable thioester, pharmaceutically acceptable ether, pharmaceutically acceptable thioether, pharmaceutically acceptable inorganic esters, pharmaceutically acceptable monosaccharide, disaccharide or oligosaccharide, spirooxirane, spirothirane, $-OSO_2R_{20}$, $-OPOR_{20}R_{21}$, $(C_1\text{-}C_{10})$ alkyl, $(C_1\text{-}C_{10})$ alkene, $(C_1\text{-}C_{10})$ alkyne or OR_{23}, wherein, R_{23} is hydrogen or SO_2OM, wherein M is selected from H, Na, sulfatide; $-SO_2O\text{-}CH_2CH(OCOR_{24})CH_2OCOR_{25}$ or phosphatide $-PO_2O\text{-}CH_2CH(OCOR_{24})CH_2OCOR_{25}$, wherein R_{24} and R_{25}, which may be the same or different, are straight or branched $(C_1\text{-}C_{20})$ alkyl, $(C_1\text{-}C_{20})$ alkene, $(C_1\text{-}C_{20})$ alkyne, sugar, polyethyleneglycol (PEG) or glucuronide



;

R_5 and R_6 taken together are =O;
R_{10} and R_{11} taken together are =O;

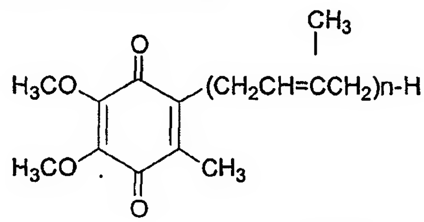
R_{15} is (1) H, halogen, $(C_1\text{-}C_{10})$ alkyl, $(C_1\text{-}C_{10})$ alkene, $(C_1\text{-}C_{10})$ alkyne, or $(C_1\text{-}C_{10})$ alkoxy when R_{16} is $-C(O)OR_{22}$, (2) H, halogen, OH, $(C_1\text{-}C_{10})$ alkyl, $(C_1\text{-}C_{10})$ alkene or $(C_1\text{-}C_{10})$ alkyne, when R_{16} is halogen, OH, $(C_1\text{-}C_{10})$ alkyl, $(C_1\text{-}C_{10})$ alkene or $(C_1\text{-}C_{10})$ alkyne, (3) H, halogen, $(C_1\text{-}C_{10})$ alkyl, $(C_1\text{-}C_{10})$ alkenyl, $(C_1\text{-}C10)$ alkynyl, formyl, $(C_1\text{-}C_{10})$ alkanoyl or epoxy when R_{16} is OH, (4) OR, SR, SH, H, halogen, pharmaceutically acceptable ester, pharmaceutically acceptable thioester, pharmaceutically acceptable ether, pharmaceutically acceptable thioether, pharmaceutically acceptable inorganic esters, pharmaceutically acceptable monosaccharide, disaccharide or oligosaccharide, spirooxirane, spirothirane, $-OSO_2R_{20}$ or $-OPOR_{20}R_{21}$ when R_{16} is H, or R_{15} and R_{16} taken together are =O;

R_{17} and R_{18} are independently (1) H, -OH, halogen, $(C_1\text{-}C_{10})$ alkyl, $(C_1\text{-}C_{10})$ alkene, $(C_1\text{-}C_{10})$ alkyne or $-(C_1\text{-}C_{10})$ alkoxy when R_6 is H OR, halogen, $(C_1\text{-}C_{10})$ alkyl or $-C(O)OR_{22}$, (2) H, $(C_1\text{-}C_{10}$ alkyl$)_n$ amino, $(C_1\text{-}C_{10}$ alkene$)_n$ amino, $(C_1\text{-}C_{10}$ alkyne$)_n$ amino, $((C_1\text{-}C_{10})$ alkyl$)_n$ amino-$(C_1\text{-}C_{10})$ alkyl, $((C_1\text{-}C_{10})$ alkene$)_n$ amino-$(C_1\text{-}C_{10})$ alkyl, $((C_1\text{-}C_{10})$ alkyne$)_n$ amino-$(C_1\text{-}C_{10})$ alkyl, $((C_1\text{-}C_{10})$ alkyl$)_n$ amino-$(C_1\text{-}C_{10})$ alkene, $((C_1\text{-}C_{10})$ alkene$)_n$ amino-$(C_1\text{-}C_{10})$ alkene, $((C_1\text{-}C_{10})$ alkyne$)_n$ amino-$(C_1\text{-}C_{10})$ alkene, $((C_1\text{-}C_{10})$ alkyl$)_n$ amino-$(C_1\text{-}C_{10})$ alkyne, $((C_1\text{-}C_{10})$ alkene$)_n$ amino-$(C_1\text{-}C_{10})$ alkyne, $((C_1\text{-}C_{10})$ alkyne$)_n$ amino-$(C_1\text{-}C_{10})$ alkyne, $(C_1\text{-}C_{10})$ alkoxy, hydroxy - $(C_1\text{-}C_{10})$ alkyl, hydroxy - $(C_1\text{-}C_{10})$ alkene, hydroxy - $(C_1\text{-}C_{10})$ alkyne, $(C_1\text{-}C_{10})$ alkoxy - $(C_1\text{-}C_{10})$ alkyl, $(C_1\text{-}C_{10})$ alkoxy - $(C_1\text{-}C_{10})$ alkene, $(C_1\text{-}C_{10})$ alkoxy - $(C_1\text{-}C_{10})$ alkyne, $(\text{halogen})_m$ $(C_1\text{-}C_{10})$ alkyl, $(\text{halogen})_m$ $(C_1\text{-}C_{10})$ alkene, $(\text{halogen})_m$ $(C_1\text{-}C_{10})$ alkyne, $(C_1\text{-}C_{10})$ alkanoyl, formyl, $(C_1\text{-}C_{10})$ carbalkoxy or $(C_1\text{-}C_{10})$ alkanoyloxy when R_{15} and R_{16} taken together are =O, (3) R_{17} and R_{18} taken together are =O; (4) R_{17} and R_{18} taken together with the carbon to which they are attached form a 3-6 member ring containing 0 or 1 oxygen atom; or (5) R_{15} and R_{17} taken together with the carbons to which they are

attached form an epoxide ring; R_{20} and R_{21} are independently OH, pharmaceutically acceptable ester or pharmaceutically acceptable ether; R_{22} is H, $(halogen)_m$ (C_1-C_{10}) alkyl, $(halogen)_m$ (C_1-C_{10}) alkene, $(halogen)_m$ (C_1-C_{10}) alkyne, (C_1-C_{10}) alkyl, (C_1-C_{10}) alkene or (C_1-C_{10}) alkyne; n is 0, 1 or 2; and m is 1, 2 or 3,

or pharmaceutically or veterinarily acceptable salts thereof; and/or

a ubiquinone of the chemical formula



(II)

(CoQ_n);

wherein n=1 to 12, the agent being present in an amount effective for treating respiratory lung diseases and conditions, or for reducing levels of, or sensitivity to, adenosine or for increasing surfactant or ubiquinone levels in a subject's tissue (s), or pharmaceutically acceptable salts thereof.

The oligos and the anti-inflammatory steroids ("AIS") and/or ubiquinones (the second agent) are provided in the form of separate compositions and formulations together with a carrier or diluent, and optionally with other therapeutic agents and formulation additives. The first and second active agents are also provided as a single composition in combination with a carrier and other ingredients known in the art, and may be provided jointly or separately contained in a capsule or cartridge, and in the form of a kit.The drawings accompanying this patent form part of the disclosure of the invention, and further illustrate some aspects of the present invention as discussed below.

BRIEF DESCRIPTION OF THE DRAWINGS

Figure 1 illustrates the inhibition of HT-29 SF cells by DHEA.

Figures 2A and 2B illustrate the effects of different amounts of DHEA on cell cycle distribution in HT-29 SF cells.

Figures 3A and 3B illustrate the reversal of DHEA-induced growth inhibition in HT-29 cells treated with CON: Control; MVA: Mevalonic Acid; SQ: Squaline; CH: Cholesterol; DN: Deoxyribonucleodies; RN: Ribonucleosides.

Figures 4A, 4B, 4C and 4D illustrate the reversal of DHEA-induced G1 arrest in HT-29 SF cells for different durations of treatment with DHEA.

The invention will now be described in general in conceptual and experimental terms, with reference to specific examples. Other objects, advantages and features of the present invention will become apparent to those skilled in the art from the description that follows.

DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENTS

This invention arose from a desire by the inventor to improve on his own prior treatments and those of others for diseases of the respiratory and pulmonary tracts, as well as those that develop elsewhere in the mammalian body. While he previously provided a pioneering treatment for respiratory tract conditions employing oligonucleotide anti-sense to pre-selected targets, and a treatment for respiratory conditions employing dehydroepiandrosterones and ubiquinone, he reasoned further that their combination might produce unexpectedly superior results given their independent mechanisms. Moreover, he posited that the combination of low dose anti-sense oligonucleotide (oligo) therapy with steroids in general and/or ubiquinone therapy would afford the advantage of their independent lack of detrimental side effects when compared with other agents such as steroids alone, and many others that are generally fraught with detrimental side effects and by the need of administering high doses of therapeutical agents. The inventor's prior discovery that variously targeted anti-sense oligonucleotides (oligos) may be utilized therapeutically in the treatment of diseases or conditions which impair respiration, cause inflammation and/or allergy(ies) in the lung and elsewhere, constrict bronchial tissue, obstruct lung airways, deplete surfactant

secretion, and/or otherwise impede normal breathing, lead him to expand his work to their combination with steroids of broad classifications, whose association, either known or discovered by him, with respiratory and pulmonary diseases as well as heart, brain, kidney, skin and other conditions, e.g. ailments associated with hypoxia, infantile Respiratory Disorder Syndrome (RDS), Acute Respiratory Disorder Syndrome (ARDS), aging, cardiac disease, cardiovascular problems, asthma, respiratory distress syndrome, rhinitis, pain, cystic fibrosis (CF), pulmonary hypertension, pulmonary vasoconstriction, pulmonary fibrosis, emphysema, chronic obstructive pulmonary disease (COPD), allergic rhinitis, and cancers such as lung cancer, leukemias, lymphomas, carcinomas, and the like, including colon cancer, breast cancer, lung cancer, pancreatic cancer, hepatocellular carcinoma, kidney cancer, melanoma, etc., as well as all types of cancers which may metastasize or have metastasized to the lung(s), including breast, liver and prostate cancer, would clearly find an immediate therapeutic application. In general, many diseases and conditions are associated with or cause inflammation, constricted bronchial tissue or lung airways, depletion of surfactant secretion, or augmented respiratory tract allergy(ies), or otherwise impede normal breathing.

The present treatment employs two agents, the first agent being selective for specific targets associated with or mediating these symptoms, and when administered into the airways it is employed in doses up to 1000-fold lower than previously seen in the art. The other agent includes a steroid agent and/or a ubiquinone and provides a more generalized amelioration of the symptoms, also in the substantial absence of undesirable side effects. This treatment further improves on the inventor's prior separate oligonucleotide (oligo) treatment by selecting oligos of reduced adenosine content, or otherwise reducing their adenosine content to reduce the release of free adenosine (A) by breakdown of A-containing oligonucleotides (oligos), thereby avoiding activating adenosine receptors that aggravate bronchoconstriction, and respiratory tract inflammation and allergies, lung surfactant depletion, and the like. As further described below, this patent also provides for the substitution of other bases with a universal base(s) (U) when some characteristic is to be modified. This patent provides novel and improved compositions, formulations, kits and methods which afford greatly improved results when compared with previously known independent treatments for preventing and alleviating bronchoconstriction, allergy(ies), inflammation, breathing difficulties, surfactant depletion and blockage of airways, as well as for preventing and alleviating other conditions and diseases which, directly or indirectly, affect the lung tissue. In different embodiments, one or more nucleic acids of the invention may be formulated for their administration alone or in combination with the steroid agents and/or ubiquinones, surfactant(s), a carrier, and/or other therapeutic agents and formulation agents known in the art. Similarly, the anti-inflammatory steroids and the ubiquinones may be formulated separately for separate administration, or with various formulation components, other therapeutic agents, and the like. By means of example, the steroids and ubiqionone may be administered once or twice daily whereas the oligo may only need be administered once weekly or biweekly.

The single or multiple active agent compositions of this invention are provided in a variety of systemic and topical formulations suitable for the delivery of anti-sense oligonucleotides (oligos) and anti-inflammatory steroids and/or ubiquinones by different routes as a fast means of starting treatment to address asthma and other pulmonary and respiratory tract diseases that may have a rapid onset, where a very low drug dosage is desirable. On the other hand, the oligos have long half-lives and may be administered as preventative of acute episodes, to significantly reduce emergency visits to a doctor or hospital, and as prophylactic maintenance treatment due to the high tolerability of the active agents for prolonged periods of time. In one embodiment, the present treatment provides a once-a-week oligo therapy, accompanied by daily administration of ubiquinone and/or a steroid incorporated into a subject's daily routine. This regime may be effectively administered preventatively, prophylactically and therapeutically, in conjunction with other therapies, or by itself for conditions without known therapies or as a substitute for therapies that have significant negative side effects is also of immediate clinical application. The present treatment also finds an application in the treatment of malignancies, given that steroids and ubiquinones are known for their carcinogenic activities as well as beneficial respiratory effects.

In these cases, the oligo are targeted to cancer-associated nucleic acids and theirproducts. General examples of oligo(s) of the invention are those targeted to a receptor(s) and it (they) are typically present in the composition in an amount effective to reduce that receptor(s) mediated effect(s), and for reducing airway obstruction, lung inflammation and allergy(ies), and surfactant depletion, among others. In one embodiment the receptor is preferably an adenosine receptor such as the adenosine A_1, A_{2b}, or A_3 receptors, and in some instances even adenosine A_{2a} receptors. The oligo of the invention may be applied to the preparation of a medicament for reducing bronchoconstriction, impeded respiration, lung inflammation and allergy(ies), depletion of surfactant or

ubiquinone, and for treating respiratory and pulmonary conditions in general, and specific ones such asthma, ARDS, pulmonary fibrosis, cystic fibrosis, allergic rhinitis, COPD, etc. Many of the conditions targeted by the present treatment afflict a large segment of the population, and either remain unaddressed in terms of therapy or the existing treatments, although heavily advertised, are only mildly effective in small numbers of the afflicted population. ARDS' most common symptoms are labored, rapid breathing, nasal flaring, cyanosis blue skin, lips and nails caused by lack of oxygen to the tissues, breathing difficulty, anxiety, stress, tension, joint stiffness, pain and temporarily absent breathing. In the following paragraphs, the specific conditions will be described, and the existing treatments, if any, discussed. ARDS is currently diagnosed by mere symptomatic signs, e. g. chest auscultation with a stethoscope that may reveal abnormal symptomatic breath sounds, and confirmed with chest X-rays and the measurement of arterial blood gas. ARDS, in some instances, appears to be associated with other diseases, such as acute myelogenous leukemia, acute tumor lysis syndrome (ATLS) developed after treatment with, e.g. cytosine arabinoside, etc. In general, however, ARDS is associated with traumatic injury, severe blood infections such as sepsis or other systemic illness, high-dose radiation therapy and chemotherapy, and inflammatory responses which lead to multiple organ failure and in many cases death. In premature babies ("premies"), the lungs are not quite developed and, therefore, the fetus is in an anoxic state during development. Moreover, lung surfactant, a material critical for normal respiration, is generally not yet present in sufficient amounts at this early stage of life; however, premies often hyper-express the adenosine A_1 receptor and/or underexpress the adenosine A_{2a} receptor and are, therefore, susceptible to respiratory problems including bronchoconstriction, lung inflammation and ARDS, among others. When Respiratory Distress Syndrome (RDS) occurs in premies, it is an extremely serious problem. Preterm infants exhibiting RDS are currently treated by ventilation and administration of oxygen and surfactant preparations. When premies survive RDS, they frequently develop bronchopulmonary dysplasia (BPD), also called chronic lung disease of early infancy, which is often fatal.

Rhinitis may be seasonal or perennial, allergic or non-allergic. Non-allergic rhinitis may be induced by infections, such as viruses, or associated with nasal polyps, as occurs in patients with aspirin idiosyncrasy. Medical conditions such as pregnancy or hypothyroidism and exposure to occupational factors or medications may cause rhinitis. The so-called NARES syndrome is a non-allergic type of rhinitis associated with eosinophils in the nasal secretions, which typically occurs in middle-age and is accompanied by some loss of sense of smell. When cholinergic pathways are stimulated they produce typical secretions that are identified by their glandular constituents so as to implicate neurologic stimulation. Other secretions typical of increased vascular permeability are found in allergic reactions as well as upper respiratory infections, and the degranulation of mast cells releases preformed mediators that interact with various cells, blood vessels, and mucous glands, to produce the typical rhinitis symptoms. Most early- and late-phase reactions occur in the nose after allergen exposure. The late-phase reaction is seen in chronic allergic rhinitis, with hypersecretion and congestion as the most prominent symptoms. When priming occurs, it exhibits a lowered threshold to stimulus after repeated allergen exposure that, in turn, causes a hypersensitivity reaction to one or more allergens. Sufferers may also become hyper-reactive to non-specific triggers such as cold air or strong odors. Saline sprays are generally used to relieve mucosal irritation or dryness associated with various nasal conditions, minimize mucosal atrophy, and dislodge encrusted or thickened mucus and are used immediately before intranasal corticosteroid dosing to prevent drug-induced local irritation. Anti-histamines such as terfenadine and astemizole, two non-sedating anti-histamines, are also employed to treat this condition, but have been associated with a ventricular arrhythmia known as Torsades de Points, usually in interaction with other medications such as ketoconazole and erythromycin, or secondary to an underlying cardiac problem. Loratadine, another non-sedating anti-histamine, and cetirizine have not been associated with an adverse impact on the QT interval, or with serious adverse cardiovascular events. Cetirizine, however, produces extreme drowsiness and has not been widely prescribed. Non-sedating anti-histamines, e.g. Claritin have not been tested for asthma or other more specific conditions. Terfenadine, loratadine and astemizole, on the other hand, exhibit extremely modest bronchodilating effects, reduction of bronchial hyper-reactivity to histamine, and protection against exercise- and antigen-induced bronchospasm. Some of these benefits, however, require higher-than-currently-recommended doses. The sedating-type anti-histamines help induce night sleep, but they cause sleepiness and compromise performance if taken during the day.

When employed, anti-histamines are typically combined with a decongestant to help relieve nasal congestion. Sympathomimetic medications are used as vasoconstrictors and decongestants. The three commonly prescribed systemic decongestants, pseudoephedrine, phenylpropanolamine and phenylephrine cause hypertension,

palpitations, tachycardia, restlessness, insomnia and headache. The interaction of phenylpropanolamine with caffeine, in doses of two to three cups of coffee, may significantly raise blood pressure. In addition, medications such as pseudoephedrine may cause hyperactivity in children. Topical decongestants, nevertheless, are only indicated for a limited period of time, as they are associated with a rebound nasal dilatation with overuse. Anti-cholinergic agents are given to patients with significant rhinorrhea or for specific conditions such as "gustatory rhinitis", usually caused by ingestion of spicy foods, and may have some beneficial effects on the common cold. Cromolyn used prophylactically as a nasal spray, however, produces sneezing, transient headache, and even nasal burning. Topical corticosteroids, such as Vancenase, are somewhat effective in the treatment of rhinitis, especially for symptoms of congestion, sneezing, and runny nose. Corticosteroid nose sprays, however, sometimes, cause irritation, stinging, burning and sneezing, and sometimes local bleeding and septal perforation. The side effects of topical steroids, however, limit their usefulness except for temporary therapy in patients with severe symptoms. These agents are sometimes used for shrinking nasal polyps when local therapy fails. Immunotherapy is expensive and inconvenient, and used mostly in in-patients who experience side effects from other medications. The so-called blocking antibodies, and agents that alter cellular histamine release, in addition, decrease IgE, which is useful in IgE-mediated diseases, e.g., hypersensitivity in atopic patients with recurrent middle ear infections. For allergic rhinitis sufferers, however, a runny nose is more than a nuisance. The disorder often results in impaired quality of life and sets the stage for more serious ailments, including psychological problems. Presently, rhinitis is mostly treated with propranolol, verapamil, and adenosine, all of which have Food and Drug Administration-approved labeling for acute termination of SupraVentricular Tachycardia (SVT).

There is very little currently available to alleviate symptoms of COPD, prevent exacerbations, preserve optimal lung function, and improve daily living activities and quality of life. Anti-cholinergic drugs achieve short-term bronchodilation, but no improved long-term prognosis even with inhaled products. Most COPD patients have at least some airways obstruction, and "the lung health study" found spirometric signs of early COPD in men and women smokers. Smoking cessation produced a slowing of the decline in the functional effective volume of the lungs. While ipratropium bromide was found to have no significant effect on the decline in the functional effective volume of the patient's lungs. Ipratropium bromide, however, produced serious adverse effects, such as cardiac symptoms, hypertension, skin rashes, and urinary retention. Short and long acting inhaled $\beta2$ adrenergic agonists achieve short-term bronchodilation and provide some symptomatic relief in COPD patients, but show no meaningful maintenance effect on its progression. Short acting $\beta2$ adrenergic agonists increase exercise capacity and produce some degree of bronchodilation, and even increase lung function in some severe COPD cases. The maximum effectiveness of the newer long acting inhaled $\beta2$ adrenergic agonists was found to be comparable to that of short acting $\beta2$ adrenergic agonists. Salmeterol was found to produce modest or no change in lung function. In asthmatics, moreover, $\beta2$ adrenergic agonists have been linked to an increased risk of death, worsened control of asthma, and deterioration in lung function.

Continuous treatment of asthmatic and COPD patients with the bronchodilators ipratropium bromide or fenoterol resulted in a decline in lung function, therefore indicating that they are not suitable for maintenance treatment. The most common immediate adverse effect of $\beta2$ adrenergic agonists, however, is tremors, which at high doses may cause a fall in plasma potassium, dysrhythmias, and reduced arterial oxygen tension. The combination of a $\beta2$ adrenergic agonist with an anti-cholinergic drug provides little additional bronchodilation compared with either drug alone. Theophyllines have a small bronchodilatory effect in COPD patients but common adverse effects, such as nausea, diarrhea, headache, irritability, seizures, and cardiac arrhythmias, that occur at highly variable blood concentrations and, in many people, within the therapeutic range. In addition, they have a small therapeutic range given that blood concentrations of 15-20 mg/l are required for optimal effects. The theophylline dose must be adjusted individually based on smoking habits, infection, and other treatments, which is cumbersome. No inflammatory response to theophyllines, however, has been reported in COPD. Oral corticosteroids show some improvement in baseline functional effective volume in stable COPD patients whereas systemic corticosteroids have been found to produce some degree of osteoporosis and overt diabetes. The longer term use of oral corticosteroids may be useful in COPD, but its usefulness must be weighed against their substantial adverse effects. Inhaled corticosteroids have been found to have no significant short-term effect in airway hyper-responsiveness to histamine, but a small long-term effect on lung function, e.g., in pre-bronchodilator functional effective volume. The treatment of COPD patients with fluticasone showed a significant reduction in moderate and severe exacerbations, and a small but significant improvement in lung function and six minute walking distance. Oral prednisolone, inhaled

beclomethasone or their combination had no effects in COPD patients, but lung function improved oral corticosteroids. Mucolytics have a modest effect on frequency and duration of exacerbations but an adverse effect on lung function. No mucolytics, however, have a significant effect in people with severe COPD. N-acetylcysteine, moreover, produced gastrointestinal side effects. Long-term oxygen therapy administered to hypoxaemic COPD and congestive cardiac failure patients, had little effect on death in men. In women, however, oxygen decreased the rates of death.

Although the progress and symptoms of pulmonary fibrosis and other ILDs may vary from person to person, they have one common link: they affect parts of the lung. The inflammation of the walls of the bronchioles (small airways), it is called bronchiolitis, and of the walls and air spaces of the alveoli (air sacs), it is called alveolitis. When the inflammation involves the small blood vessels (capillaries) of the lungs, it is called vasculitis. The inflammation may heal, or it may lead to permanent scarring of the lung tissue (pulmonary fibrosis). This latter results in permanent loss of the tissues ability to breathe and carry oxygen, and the amount of scarring determines the level of disability a person experiences due to destruction of the air sacs and lung tissue between and surrounding the air sacs and the lung capillaries. When this happens, oxygen is generally administered to help improve breathing. Pulmonary fibrosis is generally caused by occupational and environmental exposure to irritants such as asbestos, silica and metal dusts, bacteria and animal dusts, gases and fumes, asbestosis and silicosis, infections that produce lung scarring, e.g., tuberculosis, connective or collagen tissue diseases such as Rheumatoid Arthritis, Systemic Sclerosis and Systemic Lupus Erythematosis, Idiopathic Pulmonary Fibrosis, Pulmonary Fibrosis of genetic/familial origin, and certain medicines. Many of the diseases are often named after the occupations with which they are associated, such as Grain handler's lung, Mushroom worker's lung, Bagassosis, Detergent worker's lung, Maple bark stripper's lung, Malt worker's lung, Paprika splitter's lung, and Bird breeder's lung.

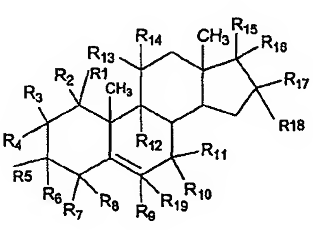
"Idiopathic" (of unknown origin) pulmonary fibrosis (IPF) is the label applied when all other causes of interstitial lung disease have been ruled out, and is said to be caused by viral illness and allergic or environmental exposure (including tobacco smoke). Bacteria and other microorganisms are not thought to be a cause of IPF. There is also a familial form of the disease, known as familial idiopathic pulmonary fibrosis whose main symptom is shortness of breath. Since many lung diseases show this symptom, making a correct diagnosis is often difficult. The shortness of breath may first appear during exercise and the condition may progress then to the point where any exertion is impossible. Eventually resulting in shortness of breath even at rest. Other symptoms may include a dry cough (without sputum), and clubbing of the fingertips. Glucocorticosteroids are usually administered to treat inflammation with inconclusive results. Other drugs are added when it is clear that the steroids are in effective. Glucocorticosteroids are also used in combination with, for example, oxygen therapy in severe cases. Infection is prevented by administration of influenza and pneumococcal pneumonia vaccines. Lung biopsies are employed to assess the unpredictable response of patients to glucocorticosteroids or other immune system suppressants. Lung transplants are an ultimate option in severe cases of pulmonary fibrosis and other lung diseases. Pulmonary fibrosis may be caused by other specific diseases, such as sarcoidosis, a disease characterized by the formation of granulomas or areas of inflammatory cells, that may attack any organ of the body, most frequently the lungs, and shows enlarged lymph glands in the center of both lungs or lung tissue thickening. For many patients, sarcoidosis is a minor problem. Its symptoms including dry cough, shortness of breath, mild chest pain, fatigue, and weakness, and weight loss appears infrequently and stops even without medication. For others, it is a serious, disabling disease. Although almost everybody may develop the disease, it affects African-Americans more than members of any other race, most commonly young adults 20 to 40. Histiocytosis X, also associated with pulmonary fibrosis, seems to begin in the bronchioles or small airways of the lungs and their associated arteries and veins, and is generally followed by destruction of the bronchioles and narrowing and damaging of small blood vessels. Symptoms of this disease include a dry cough (without sputum), breathlessness upon exertion, and/or chest pain. In most cases the disease is chronic with loss of lung function, and glucocorticosteroid therapy is ineffective. Many histiocytosis X sufferers are current or former cigarette smokers mining workers, those exposed to asbestos or metal dusts or fibers, and agricultural workers exposed to particulate organic substances, such as moldy hay (Farmer's Lung). Asbestosis and silicosis are two occupational lung diseases whose causes are known. Asbestosis is caused by small needle-like particles of asbestos inhaled into the lungs that cause lung scarring or pulmonary fibrosis that may lead to lung cancer. Silicosis is a dust disease that comes from breathing in free crystalline silica dust, and is produced by all types of mining in which the ore, e. g. gold, lead, zinc, copper, iron, anthracite (hard) coal, and some bituminous (soft) coal, are extracted from quartz rock. Workers in foundries, sandstone grinding, tunneling, sandblasting,

concrete breaking, granite carving, and china manufacturing also inhaled tiny specks of silica that are carried down to the lung alveoli, where they lead to pulmonary fibrosis. There is no good therapy for this disease, but glucocorticosteroids alone, or combined drug therapy, and the hope of lung transplant are three treatments currently being tested. This patent provides the first effective therapy for these and other respiratory and lung ailments.

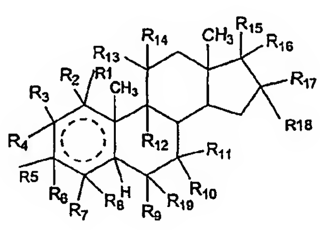
In the present context, the terms "adenosine, surfactant and ubiquinone depletion" are intended to encompass levels that are lowered or depleted in the subject as compared to previous levels in that subject, and levels, as well as levels in that subject but, because of some other reason, a therapeutic benefit would be achieved in the patient by modification of the levels of these agents as compared to previous levels.

The present invention, thus, provides a pharmaceutical or veterinary composition, comprising a pharmaceutically or veterinarily acceptable carrier or diluent, a first active agent comprising an anti-sense oligonucleotide(s) (oligo(s)), and a second active agent comprising an anti-inflammatory steroid and/or a ubiquinone, in amounts effective for alleviating a variety of airway or lung diseases, and other diseases such as cancers or their metastasis, among others. This invention provides the targeted administration of one or more oligo(s) in combination with a second active agent that has a more generalized effect as an anti-inflammatory, and alleviates bronchoconstriction, surfactant or ubiquinone depletion, and respiratory airway allergies. The oligos may be directed to one or more of a number of targets, and are delivered by any route, preferably through the airways to attain a fast and localized delivery through the mucosal tissue of the lungs to permit their hybridization to a desired target polynucleotide to prevent gene transcription and/or translation, thereby reducing, hampering or completely stopping gene expression. This may be attained by means of a solid powdered or liquid solution, suspension or emulsion, such as an aerosol, for administration into the respiratory airways, or direct instillation into the lung(s). While both active agents may be administered via the respiration, it is also possible to administer one by another route, e.g. steroids. The oligos employed in the composition are suitable for altering effects mediated by a variety of target polynucleic acids, such as regulatory nucleic acid sequences, genes and mRNAs, that are associated with diseases and conditions affecting the pulmonary and respiratory tracts, among others, and their associated effects, e. g. bronchoconstriction, respiratory tract inflammation, immune mediated reactions, lung surfactant deficiency(ies), respiratory allergy(ies) and other airway problems, which may be caused by different conditions, including pulmonary vasoconstriction, inflammation, respiratory allergies, asthma, impeded respiration, respiratory distress syndrome (RDS), pain, cystic fibrosis (CF), allergic rhinitis, pulmonary hypertension and fibrosis, sepsis, dispnea, acute respiratory distress syndrome (ARDS), as well as its variations in pregnant mothers and new-borns (RDS), pulmonary fibrosis, emphysema, chronic obstructive pulmonary disease (COPD), bronchitis, and cancers such as leukemias, lymphomas, carcinomas, and the like, e.g. lung cancer, colon cancer, breast cancer, pancreatic cancer, hepatocellular carcinoma, kidney cancer, melanoma, hepatic metastases, etc., as well as all cancers which may metastasize or have metastasized to the lung(s), including breast and prostate cancer. The present agents are also suitable for administration before, during and after other treatments, including radiation, chemotherapy, antibody therapy, phototherapy, and cancer and other surgeries.

The second active agent is selected from an anti-inflammatory steroid such as an adrenal androgen of the chemical formula



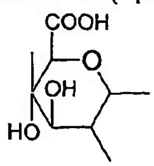
(Ia) or



(Ib)

wherein R_1, R_2, R_3, R_4, R_6, R_7, R_8, R_9, R_{10}, R_{12}, R_{13}, R_{14} and R_{19} are independently H, OR, halogen, $(C_1\text{-}C_{10})$ alkyl, $(C_1\text{-}C_{10})$ alkene, $(C_1\text{-}C_{10})$ alkyne, $(C_1\text{-}C_{10})$ alkoxy, or two or more of R_1, R_2, R_3, R_4, R_6, R_7, R_8, R_9, R_{10}, R_{12}, R_{13}, R_{14} and R_{19} can be linked by combination of the atoms of C, O, N, S, P and Si to form a 3 to 15 member ring(s), in the α- and/or β- configuration;

R_5, R_6, R_{10}, and R_{11} are independently OH, SH, H, halogen, pharmaceutically acceptable ester, pharmaceutically acceptable thioester, pharmaceutically acceptable ether, pharmaceutically acceptable thioether, pharmaceutically acceptable inorganic esters, pharmaceutically acceptable monosaccharide, disaccharide or oligosaccharide, spirooxirane, spirothirane, $-OSO_2R_{20}$, $-OPOR_{20}R_{21}$, (C_1-C_{10}) alkyl, (C_1-C_{10}) alkene, (C_1-C_{10}) alkyne or OR_{23}, wherein, R_{23} is hydrogen or SO_2OM, wherein M is selected from H, Na, sulfatide; $-SO_2O\text{-}CH_2CH(OCOR_{24})CH_2OCOR_{25}$ or phosphatide $-PO_2O\text{-}CH_2CH(OCOR_{24})CH_2OCOR_{25}$, wherein R_{24} and R_{25}, which may be the same or different, are straight or branched (C_1-C_{20}) alkyl, (C_1-C_{20}) alkene, (C_1-C_{20}) alkyne, sugar, polyethyleneglycol (PEG) or glucuronide



;

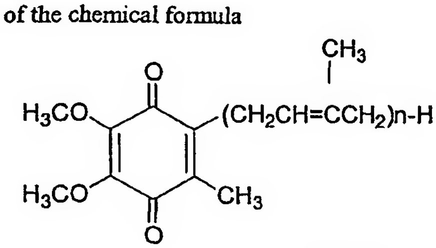
R_5 and R_6 taken together are =O;

R_{10} and R_{11} taken together are =O;

R_{15} is (1) H, halogen, (C_1-C_{10}) alkyl, (C_1-C_{10}) alkene, (C_1-C_{10}) alkyne, or (C_1-C_{10}) alkoxy when R_{16} is $-C(O)OR_{22}$, (2) H, halogen, OH, (C_1-C_{10}) alkyl, (C_1-C_{10}) alkene or (C_1-C_{10}) alkyne, when R_{16} is halogen, OH, (C_1-C_{10}) alkyl, (C_1-C_{10}) alkene or (C_1-C_{10}) alkyne, (3) H, halogen, (C_1-C_{10}) alkyl, (C_1-C_{10}) alkenyl, (C_1-C10) alkynyl, formyl, (C_1-C_{10}) alkanoyl or epoxy when R_{16} is OH, (4) OR, SR, SH, H, halogen, pharmaceutically acceptable ester, pharmaceutically acceptable thioester, pharmaceutically acceptable ether, pharmaceutically acceptable thioether, pharmaceutically acceptable inorganic esters, pharmaceutically acceptable monosaccharide, disaccharide or oligosaccharide, spirooxirane, spirothirane, $-OSO_2R_{20}$ or $-OPOR_{20}R_{21}$ when R_{16} is H, or R_{15} and R_{16} taken together are =O;

R_{17} and R_{18} are independently (1) H, -OH, halogen, (C_1-C_{10}) alkyl, (C_1-C_{10}) alkene, (C_1-C_{10}) alkyne or -(C_1-C_{10}) alkoxy when R_6 is H OR, halogen, (C_1-C_{10}) alkyl or $-C(O)OR_{22}$, (2) H, (C_1-C_{10} alkyl)$_n$ amino, (C_1-C_{10} alkene)$_n$ amino, (C_1-C_{10} alkyne)$_n$ amino, ((C_1-C_{10}) alkyl)$_n$ amino-(C_1-C_{10}) alkyl, ((C_1-C_{10}) alkene)$_n$ amino-(C_1-C_{10}) alkyl, ((C_1-C_{10}) alkyne)$_n$ amino-(C_1-C_{10}) alkyl, ((C_1-C_{10}) alkyl)$_n$ amino-(C_1-C_{10}) alkene, ((C_1-C_{10}) alkene)$_n$ amino-(C_1-C_{10}) alkene, ((C_1-C_{10}) alkyne)$_n$ amino-(C_1-C_{10}) alkene, ((C_1-C_{10}) alkyl)$_n$ amino-(C_1-C_{10}) alkyne, ((C_1-C_{10}) alkene)$_n$ amino-(C_1-C_{10}) alkyne, ((C_1-C_{10}) alkyne)$_n$ amino-(C_1-C_{10}) alkyne, (C_1-C_{10}) alkoxy, hydroxy - (C_1-C_{10}) alkyl, hydroxy - (C_1-C_{10}) alkene, hydroxy - (C_1-C_{10}) alkyne, (C_1-C_{10}) alkoxy - (C_1-C_{10}) alkyl, (C_1-C_{10}) alkoxy - (C_1-C_{10}) alkene, (C_1-C_{10}) alkoxy - (C_1-C_{10}) alkyne, (halogen)$_m$ (C_1-C_{10}) alkyl, (halogen)$_m$ (C_1-C_{10}) alkene, (halogen)$_m$ (C_1-C_{10}) alkyne, (C_1-C_{10}) alkanoyl, formyl, (C_1-C_{10}) carbalkoxy or (C_1-C_{10}) alkanoyloxy when R_{15} and R_{16} taken together are =O, (3) R_{17} and R_{18} taken together are =O; (4) R_{17} and R_{18} taken together with the carbon to which they are attached form a 3-6 member ring containing 0 or 1 oxygen atom; or (5) R_{15} and R_{17} taken together with the carbons to which they are attached form an epoxide ring; R_{20} and R_{21} are independently OH, pharmaceutically acceptable ester or pharmaceutically acceptable ether; R_{22} is H, (halogen)$_m$ (C_1-C_{10}) alkyl, (halogen)$_m$ (C_1-C_{10}) alkene, (halogen)$_m$ (C_1-C_{10}) alkyne, (C_1-C_{10}) alkyl, (C_1-C_{10}) alkene or (C_1-C_{10}) alkyne; n is 0, 1 or 2; and m is 1, 2 or 3; or pharmaceutically or veterinarily acceptable salts thereof; and/or

a ubiquinone of the chemical formula



(II)

(CoQ_n) ,

wherein n is 1 to 12, the agent being present in an amount effective for treating respiratory lung diseases andconditions, or for reducing levels of, or sensitivity to, adenosine in a subject's tissue (s); and/or pharmaceutically acceptable salts of either of them.

One group of preferred steroids having a general formula (Ib) are 21-acetoxypregnenolone ((3β)-21-(acetyloxy)-3-hydroxypregn-5-en-20-one; Herloff and Inhoffen, US Patent No. 2,409,043); alclometasone ((7α, 11β, 16α)-7-Chloro-11, 17, 21-trihydroxy-16-methylpregna-1,4-diene-3,20-dione; Green et al., US Patent No. 4,076,708, and Green and Shue, US Patent No. 4,124,707), or its 17,21-dipropionate form ($C_{28}H_{37}ClO_7$); algestone ((16α)-16,17-dihydroxypregn-4-ene-3,20-dione; Colton, US Patent No. 2,727,909, Hydorn et al., US Patent No. 3,165,541, and Diassi, US Patent No. 3,027,384), its cyclic acetal with acetone form ($C_{24}H_{34}O_4$), or its 16α-methyl ether form ($C_{22}H_{32}O_4$); amcinonide ((11β, 16α)-21-(acetyloxy)-16,17-[cyclopentylidenebis(oxy)]-9-fluoro-11-hydroxypregna-1,4-di-ene-3,20-dione; Shultz et al., German Patent No. 2,437,847); beclomethasone ((11β,16β)-9-chloro-11,17,21-trihydroxy-16-methylpregna-1,4-diene-3,20-dione; British Patent No. 912,378, British Patent No. 901,093, Elks et al., Belgium Patent No. 649,170, and US Patent No. 3,312,590), its dipropionate form ($C_{23}H_{37}ClO_7$), or its monopropionate form; betamethasone ((11β, 16β)-9-fluoro-11, 17, 21-trihydroxy-16-methylpregna-1,4-diene-3,20-dione; US Patent No. 3,053,865, and Amiard et al., US Patent No. 3,104,246), its 21-acetate form ($C_{24}H_{31}FO_6$), its 21-adamantoate form ($C_{33}H_{43}FO_6$; Philips and English, German Patent No. 2,232,827), its 17-benzoate form ($C_{29}H_{33}FO_6$), its 17, 21-dipropionate form ($C_{28}H_{37}FO_7$), its 17-valerate form ($C_{27}H_{37}FO_6$; Dutch Patent Application No. 6,406,615), or its 21-phospate disodium salt form ($C_{22}H_{28}FNa_2O_8P$); budesonide ((11β, 16α)-16,17-[butylidenebis(oxy)]-11, 21-dihydropregna-1,4-diene-3,20-dione; Brattsand et al., German Patent No. 2,323,215, and US Patent No. 3,929,768); chloroprednisone ((6α)-chloro-17,21-dihydroxypregna-1,4-diene-3,11,20-trione; Batres et al., German Patent No. 1,079,042, and Ringold and Rosenkrantz, US Patent No. 2,957,895), or its 21-acetate from ($C_{23}H_{27}ClO_6$); ciclesonide (Taylor et al., Am J Respir Crit Care Med (1999) 160(1), 237-43); clobetasol ((11β,16β)-21-chloro-9-fluoro-11,17-dihydroxy-16-methylpregna-1,4-diene-3,20-dione; Elks et al., German Patent No. 1,902,340, and US Patent No. 3,721,687), or its 17-propionate form ($C_{25}H_{32}ClFO_5$); clobetasone ((16β)-21-chloro-9-fluoro-17-hydroxy-16-methylpregna-1,4-diene-3,11,20-trione; Elks et al., German Patent No. 1,902,340, and US Patent No. 3,721,687), or its 17-butyrate form ($C_{26}H_{32}ClFO_5$); clocortolone ((6α,11β,16α)-9-chloro-6-fluoro-11,21-dihydroxy-16-methylpregna-1,4-diene-3,20-dione; Dutch Patent Application No. 6,412,708, Kasper and Philippson, German Patent No. 2,011,559, and US Patent No. 3,729,495), its 21-acetate form ($C_{24}H_{30}ClFO_5$), or its 21-pivalate form ($C_{27}H_{36}ClFO_5$); cloprednol ((11β)-6-chloro-11,17,21-trihydroxypregna-1,4,6-triene-3,20-dione; France Patent No. 1,271,981, and US Patent No.3,232,965); coroxon (phosphoric acid 3-chloro-4-methyl-2-oxo-2H-1-benzopyran-7-yl diethyl ester; Fusco et al., US Patent No. 2,951,851); cortisone (17,21-dihydroxypregn-4-ene-3,11,20-trione; Reichstein, US Patent No. 2,403,683, and Gallagher, US Patent No. 2,447,325), its 21-acetate form ($C_{23}H_{30}O_6$), or its 21-cyclopentanepropionate form ($C_{29}H_{40}O_6$), examples of brand name for cortisone include Cortone Acetate, Adreson, Altesona, Cortelan, Cortistab, Cortisyl, Cortogen, Cortone, and Scheroson; cortivazol ((11β,16α)-21-(acetyloxy)-11,17-dihydroxy-6,16-dimethyl-2'-phenyl-2'H-pregna-2,4,6-trieno[3,2-c]pyrazol-20-one; Tishler et al., US Patent No. 3,067,194, and US Patent No. 3,300,483); deflazacort ((11β,16β)-21-(acetyloxy)-11-hydroxy-2'-methyl-5'H-pregna-1,4-dieno[17,16-d]oxazole-3,20-dione; Nathansohn and Winters, Belgium Patent No. 679,820, British Patent No. 1,077,393, and US Patent No. 3,436,389); desonide ((11β,16α)11,21-dihydroxy-16,17-[(1-methylethylidene)bis(oxy)]pregna-1,4-diene-3,20-dione; Bernstein and Allen, US Patent No. 2,990,401, Lee et al., US Patent No. 3,536,586, and Diassi and Principe, US Patent No. 3,549,498); desoximetasone ((11β,16α)-9-fluoro-11, 21-dihydroxy-16-methylpregna-1,4-diene-3,20-dione; Joly et al., France Patent No. 1,296,544, US Patent No. 3,099,654, Belgium Patent No. 614,196, and Kieslich et al., US Patent No. 3,232,839); dexamethasone ((11β,16α)-9-fluoro-11,17,21-trihydroxy-16-methylpregna-1,4-diene-3,20-dione; Muller et al., US Patent No. 3,007,923, Arth et al., German Patent No. 1,113,690, and British Patent No. 869,511), its 21-acetate form ($C_{24}H_{31}FO_6$), its 21-(3,3-dimethylbutyrate) form ($C_{28}H_{39}FO_6$; Chemerda et al., US Patent No. 2,939,873), its 21-diethylaminoacetate form ($C_{28}H_{41}FNO_6$), its 21-isonicotinate form ($C_{28}H_{41}FNO_6$), its 17,21-dipropionate form ($C_{28}H_{37}FNO_6$), or its 21-palmitate form ($C_{38}H_{59}FO_6$), examples of brand name for dexamethasone include Decadron-oral, Dexameth, Dexone, Hexadrol-oral, Dexamethasone Intensol, Dexone 0.5, Dexone 0.75, Dexone 1.5, and Dexone 4; diflorasone ((6α,11β,16β)-6,9-difluoro-11,17,21-trihydroxy-16-methylpregna-1,4-diene-3,20-dione; British Patent No. 881,334, British Patent No. 898,293, Lincoln et al., US Patent No. 3,557,158, and British Patent No. 912,015), or its diacetate form ($C_{26}H_{32}F_2O_7$; Ayer et al., German Patent No. 2,308,731, and

US Patent No. 3,980,778); diflucortolone ((6α,11β,16α)-6,9-difluoro-11,21-dihydroxy-16-methylpregna-1,4-diene-3,20-dione; Belgium Patent No. 639,708, and Kieslich et al., US Patent No.3,426,128), or its 21-valerate form ($C_{27}H_{36}F_2O_5$); difluprednate ((6α,11β)-21-(acetyloxy)-6,9-difluoro-11-hydroxy-17-(1-oxobutoxy)pregna-1,4-diene-3,20-dione; Ercoli and Gardi, South African Patent No. 680,386, and Ercoli et al., US Patent No. 3,780,177); enoxolone ((3β,20β)-3-hydroxy-11-oxoolean-12-en-29-oic acid; British Patent No. 833,184), or its 18α-hydrogen form; fluazacort ((11β,16β)-21-(acetyloxy)-9-fluoro-11-hydroxy-2'-methyl-5'H-pregna-1,4-dieno[17,16-d]oxazole-3,20-dione; British Patent No. 1,119,082, and US Patent No. 3,461,119); flucloronide ((6α,11β,16α)-9,11-dichlro-6-fluoro-21-hydroxy-16,17-[(1-methylethylidene)bis(oxy)]-pregna-1,4-diene-3,20-dione; Bowers, US Patent No. 3,201,391); flumethasone ((6α,11β,16α)-6,9-difluoro-11,17,21-trihydroxy-16-methylpregna-1,4-diene-3,20-dione; British Patent No. 902,292, and Lincoln et al., US Patent No. 3,499,016), its 21-acetate form ($C_{24}H_{30}F_2O_6$), or its 21-pivalate form ($C_{27}H_{36}F_2O_6$); flunisolide ((6α,11β,16α)-6-fluoro-11,21-dihydroxy-16,17-[(1-methylethylidene) bis(oxy)]pregna-1,4-diene-3,20-dione; British Patent No. 933,867, Ringold and Rosenkranz, US Patent No. 3,124,571, and Ringold et al., US Patent No. 3,126,375), or its 21-acetate form ($C_{26}H_{33}FO_7$); fluocinolone acetate ((6α,11β,16α)-6,9-difluoro-11,21-dihydroxy-16,17-[(1-methylethylidene)bis(oxy)]-pregna-1,4-diene-3,20-dione; Mills and Bowers, US Patent No. 3,014,938, and Ringold et al., US Patent No. 3,126,375); fluocinonide ((6α,11β,16α)-21-(acetyloxy)-6,9-difluoro-11-hydroxy-16,17-[(1-methylethylidene)bis(oxy)]-pregna-1,4-diene-3,20-dione; British Patent No. 916,996, Ringlod and Rosenkranz, US Patent No. 3,124,571, Ringold et al., US Patent No. 3,126,375, and Fried, US Patent No. 3,197,469); fluocortin butyl ((6α,11β,16α)-6-fluoro-11-hydroxy-16-methyl-3,20-dioxopregna-1,4-dien-21-oic acid butyl ester; Laurent et al., German Patent Nos. 2,150,268 and 2,150,270, and US Patent No. 3,824,260); fluocortolone ((6α,11β,16α)-6-fluoro-11,21-dihydroxy-16-methylpregna-1,4-diene-3,20-dione; Belgium Patent 614,196, and Kieslich et al., US Patent No. 3,232,839), its 21-acetate form ($C_{24}H_{31}FO_5$), its 21-hexanoate form ($C_{28}H_{39}FO_5$), or its 21-pivalate form ($C_{22}H_{37}FO_5$); fluorometholone ((6α,11β)-9-fluoro-11,17-dihydroxy-6-methylpregana-1,4-diene-3,20-dione; Lincoln et al., US Patent No. 2,867,637), or its 17-acetate form ($C_{24}H_{31}FO_5$; Magerlein et al., US Patent No. 3,038,914); fluperolone acetate ([11β,17α,17(S)]-17-[2-(acetyloxy)-1-oxopropyl]-9-fluoro-11,17-dihydroxyandrosta-1,4-dien-3-one; Agnello and Laubach, US Patent No. 3,234,095); fluprednidene acetate ((11β)-21-(acetyloxy)-9-fluoro-11,17-dihydroxy-16-methylenepregna-1,4-diene-3,20-dione; Wendler et al., US Patent Nos. 3,065,239, 3,068,224, 3,068,226 and 3,136,760); fluprednisolone ((6α,11β)-6-fluoro-11,17,21-trihydroxypregna-1,4-diene-3,20-dione; Batres et al., German Patent No. 1,079,042, and Lettre and Hotz, German Patent No. 1,088,953), or its 21-acetate form ($C_{23}H_{29}FO_6$); flurandrenolide ((6α,11β,16α)-6-fluoro-11,21-dihydroxy-16,17-[(1-methylethylidene)bis(oxy)]pregn-4-ene-3,20-dione; Ringold et al., German Patent No. 1,131,213, and US Patent No. 3,126,375); fluticasone propionate ((6α,11β,16α,17α)-6,9-difluoro-11-hydroxy-16-methyl-3-oxo-17-(1-oxopropoxy)androsta-1,4-diene-17-carbothioic acid S-(fluoromethyl) ester; Dutch Patent Application No. 8,100,707, and Phillipps et al., US Patent No. 4,335,121); formocortal ((11β,16α)-21-(acetyloxy)-3-(2-chloroethoxy)-9-fluoro-11-hydroxy-16,17-[(1-methylethylidene)bis(oxy)]-20-oxopregna-3,5-diene-6-carboxaldehyde; Camerino et al., France Patent No. 1,396,602, Dutch Patent Application No. 6,508,458, and US Patent No. 3,314,945); halcinonide ((11β,16α)-21-chloro-9-fluoro-11-hydroxy-16,17-[(1-methyethylidene)bis(oxy)]pregn-4-ene-3,20-dione; Difazio and Augustine, German Patent No. 2,355,710, and US Patent No. 3,892,857); halobetasol propionate (6α,11β,16β)-21-chloro-6,9-difluoro-11-hydroxy-16-methyl-17-(1-oxopropoxy)pregna-1,4-diene-3,20-dione; Kalvoda and Anner, German Patent No. 2,743,069, and US Patent No. 4,619,921); halometasone ((6α,11β,16α)-2-chloro-6,9-difluoro-11,17,21-trihydroxy-16-methylpregna-1,4-diene-3,20-dione; Anner et al., Dutch Patent Application No. 540,244, US Patent No. 3,652,554, and Swiss Patent No. 551,399), or its monohydrate form ($C_{22}H_{27}ClF_2O_5 \bullet H_2O$); halopredone acetate ((6β,11β)-17,21-bis(acetyloxy)-2-bromo-6,9-difluoro-11-hydroxypregna-1,4-diene-3,20-dione; Riva and Toscano, German Patent No. 2,508,136, and Riva et al., US Patent No. 4,226,862); hydrocortamate (N,N-diethylglycine (11β)-11,17-dihydroxy-3,20-dioxopregn-4-en-21-yl ester; Pinson and Laubach, German Patent No. 1,016,708, and Richter and Schenck, German Patent No. 1,037,451), or its hydrochloride form ($C_{27}H_{41}NO_6 \bullet HCl$); hydrocortisone ((11β)-11,17,21-trihydroxypregn-4-ene-3,20-dione; Murray and Peterson, US Patent No. 2,602,769), its 21-acetate form ($C_{23}H_{32}O_6$), its 17-butyrate form ($C_{25}H_{36}O_6$), its 21-phosphate disodium salt form ($C_{21}H_{29}Na_2O_8P$), its 21-sodium succinate form ($C_{25}H_{33}NaO_8$), its 17-valerate form ($C_{26}H_{38}O_6$), or its cypionate form (Munson and Wilson, J Pharm Sci (1981) 70(2), 177-81), examples of brand name for hydrocortisone include Cortef, Hydrocortone, examples of brand name for hydrocortisone cypionate include Cortef Oral Suspension; loteprednol etabonate ((11β,17α,)-17-

[(ethoxycarbonyl)oxy]-11-hydroxy-3-oxoandrosta-1,4-diene-17-carboxylic acid chloromethyl ester; Bodor, Belgium Patent No. 889,563, and US Patent No. 4,996,335); mazipredone ((11β)-11,17-dihydroxy-21-(4-methyl-1-piperazinyl)pregna-1,4-diene-3,20-dione; Tuba et al., Hungarian Patent No. 150,350), or its hydrochloride form ($C_{26}H_{38}N_2O_4$•HCl); medrysone ((6α,11β)-11-hydroxy-6-methylpregn-4-ene-3,20-dione; Sebek et al., US Patent No. 2,864,837, and Spero and Thompson, US Patent No. 2,968,655); meprednisone ((16β)-17,21-dihydroxy-16-methylpregna-1,4-diene-3,11,20-trione; British Patent No. 901,092, and Rausser and Oliveto, US Patent No. 3,164,618), or its 21-acetate form ($C_{24}H_{30}O_6$); methylprednisolone ((6α,11β)-11,17,21-trihydroxy-6-methylpregna-1,4-diene-3,20-dione; Sebek and Spero, US Patent No. 2,897,218, and Gould, US Patent No. 3,053,832), its 21-acetate form ($C_{24}H_{32}O_6$), its 21-phosphate disodium salt form ($C_{22}H_{29}Na_2O_8P$), its 21-succinate sodium salt form ($C_{26}H_{33}NaO_8$), or its aceponate form ($C_{27}H_{36}O_7$), examples of brand name for methylprednisolone include Medrol-Oral; mometasone furoate ((11β,16α)-9,21-dichloro-17-[(2-furanylcarbonyl)oxy]-11-hydroxy-16-methylpregna-1,4-diene-3,20-dione; Shapiro, European Patent Application No. 57,401, and US Patent No. 4,472,393); paramethasone ((6α,11β,16α)-6-fluoro-11,17,21-trihydroxy-16-methylpregna-1,4-diene-3,20-dione; Edwards et al., J. Am.Chem.Soc. (1960) 82, 2318), its 21-acetate form ($C_{24}H_{31}FO_6$), its disodium phosphate form, or a mixture of its 21-acetate and disodium phosphate form; prednicarbate ((11β)-17[(ethoxycarbonyl)oxy]-11-hydroxy-21-(1-oxopropoxy)pregna-1,4-diene-3,20-dione; Stache et al., Germany Patent No. 2,735,110, and US Patent No. 4,242,334); prednisolone ((11β)-11,17,21-trihydroxypregna-1,4-diene-3,20-dione; Nobile, US Patent Nos. 2,837,464 and 3,134,718), its 21-acetate form ($C_{23}H_{30}O_6$), its 21-*tert*-butylacetate form ($C_{27}H_{38}O_6$; Sarrett, US Patent No. 2,736,734), its 21-hydrogen succinate form ($C_{25}H_{32}O_8$), its 21-succinate sodium salt form ($C_{25}H_{31}NaO_8$; Shull and Kita, German Patent No. 1,045,400), its 21-stearoylgylcolate form ($C_{41}H_{64}O_8$; Giraldi and Nannini, US Patent No. 3,171,846), its 21-*m*-sulfobenzoate sodium salt form ($C_{28}H_{31}NaO_9S$; (11β)-11,17-dihydroxy-21-[(3-sulfobenzoyl)oxy]pregna-1,4-diene-3,20-dione monosodium salt; Allais and Girault, US Patent No. 3,032,568, Joly and Warnant, US Patent No. 3,037,034), or its 21-trimethylacetate form ($C_{26}H_{36}O_6$; Joly and Warnant, US Patent No. 3,037,034), examples of brand name for prednisolone include Prelone, Delta-Cortef, Pediapred, Adnisolone, Cortalone, Deltacortril, Deltasolone, Deltastab, Di-Adreson F, Encortolone, Hydrocortancyl, Medisolone, Meticortelone, Opredsone, Panaafcortelone, Precortisyl, Prenisolona, Scherisolona, Scherisolone; prednisolone 21-diethylaminoacetate (N,N-diethylglycine (11β)-11,17-dihydroxy-3,20-dioxopregna-1,4-dien-21-yl ester; British Patent No. 862,370), or its hydrochloride form ($C_{27}H_{39}NO_6$•HCl); prednisolone sodium phosphate (11,17-dihydroxy-21-(phosphonooxy)pregna-1,4-diene-3,20-dione disodium salt; Sarett, US Patent No. 2,789,117, and Elks and Phillipps, US Patent No. 2,936,313); prednisone (17,21-dihydroxypregna-1,4-diene-3,11,20-trione; Oliveto and Gould, US Patent No. 2,897,216, and Nobile, US Patent Nos. 2,837,464 and 3,134,718), or its 21-acetate form ($C_{23}H_{28}O_6$), examples of brand name for prednisone include Deltasone, Liquid Pred, Meticorten, Orasone 1, Orasone 5, Orasone 10, Orasone 20, Orasone 50, Prednicen-M, Prednisone Intensol, Sterapred, Sterapred DS, Adasone, Cartancyl, Colisone, Cordrol, Cortan, Dacortin, Decorti, Decortisyl, Delcortin, Dellacort, Delta-Dome, Deltacortene, Deltisona, Diadreson, Econosone, Encorton, Fernisone, Nisona, Novoprednisone, Panafcort, Panasol, Paracort, Parmenison, Pehacort, Predeltin, Prednicort, Prednicot, Prednidib, Predniment, Rectodelt, Ultracorten, Winpred; prednival ((11β)-11,21-dihydroxy-17-[(1-oxopentyl)oxy]pregna-1,4-diene-3,20-dione; Ercoli and Gardi, US Patent No. 3,152,154), or its 21-acetate form ($C_{28}H_{38}O_7$); prednylidene ((11β)-11,17,21-trihydroxy-16-methylenepregna-1,4-diene-3,20-dione; Mannhardt et al., Tetrahedron Letters (1960) 16, 21), or its 21-diethylaminoacetate hydrochloride form ($C_{28}H_{39}NO_6$•HCl; German Patent No. 1,134,074); rimexolone ((11β,16α,17β)-11-hydroxy-16,17-dimethyl-17-(1-oxopropyl)androsta-1,4-dien-3-one; Dutch Patent Application No. 7,300,313, and Woods et al., US Patent No. 3,947,478); rofleponide ((22R)-6α,9α-Difluoro-11β,21-dihydroxy-16α,17α-propylmethylenedioxypregn-4-ene-3,20-dione; Thalen and Wickstrom, Steroids (2000) 65(1), 16-23); tipredane ((11β, 17α)-17-(ethylthio)-9α-fluoro-11β-hydroxy-17-(methylthio) androsta-1,4-dien-3-one; Wojnar et al., Arzneimittelforschung (1986) 36(12), 1782-7); tixocortol ((11β)-11,17-dihydroxy-21-mercaptopregn-4-ene-3,20-dione; Simons et al., J Steroid Biochem (1980) 13, 311), or its 21-pivalate form ($C_{26}H_{38}O_5S$; (11β)-21-[(2,2-dimethyl-1-oxopropyl)thio]-11,17-dihydroxypregn-4-ene-3,20-dione; Torossian et al., German Patent No. 2,357,778, and US Patent No. 4,014,909); triamcinolone ((11β,16α)-9-fluoro-11,16,17,21-tetrahydroxypregna-1,4-diene-3,20-dione; Bernstein et al., US Patent No. 2,789,118, and Allen et al., US Patent No.3,021,347), or its 16,21-diacetate form ($C_{25}H_{31}FO_8$; (11β,16α)-16,21-bis(acetyloxy)-9-fluoro-11,17-dihydroxypregna-1,4-diene-3,20-dione), examples of brand name for triamcinolone include Kenacort, Aristocort, Atolone, Sholog A, Tramacort-D, Tri-Med,

Triamcot, Tristo-Plex, Trylone D, U-Tri-Lone; Triamcinolone acetonide ((11β,16α)-9-fluoro-11,21-dihydroxy-16,17-[1-methylethylidenebis(oxy)]pregna-1,4-diene-3,20-dione; Bernstein and Allen, US Patent No. 2,990,401, and Hydorn, US Patent No. 3,035,050), its 21-acetate crystal form, its 21-disodium phosphate form ($C_{24}H_{30}FNa_2O_9P$), or its 21-hemisuccinate form ($C_{28}H_{35}FO_9$); triamcinolone benetonide ((11β,16α)-21-[3-(benzoylamino)-2-methyl-1-oxopropoxy]-9-fluoro-11-hydroxy-16,17-[(1-methylethylidene)bis(oxy)]pregna-1,4-diene-3,20-dione; Cavazza et al., German Patent No. 2,047,218, and US Patent No. 3,749,712); and triamcinolone hexacetonide ((11β,16α)-21-(3,3-dimethyl-1-oxobutoxy)-9-fluoro-11-hydroxy-16,17-[(1-methylethylidene)bis(oxy)]pregna-1,4-diene-3,20-dione; Nash and Naeger, US Patent No. 3,457,348). Preferably, the steroids comprises budesonide, testosterone, progesterone, estrogen, flunisolide, triamcinolone, beclomethasone, betamethasone, dexamethasone, fluticasone, methylprednisolone, prednisone, hydrocortisone, and mometasone. Another group of preferred steroids are mineralocorticoid steroids including aldosterone, deoxycorticosterone, deoxycorticosterone acetate and fludrocortisone. However, others are also suitable.

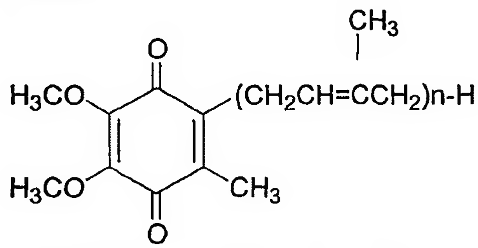
Also provided is a method for reducing or depleting adenosine levels, or treating hypersensitivity to adenosine, particularly in the lung, liver, heart and/or brain, or increasing levels of lung surfactant or of ubiquinone in the lung, heart or other tissues, and for treating various respiratory, lung and other diseases and their symptoms, by administering to a subject in need of such treatment a first active agent comprising the anti-sense oligo of the invention, and a second active agent comprising the AIS of chemical formula (Ia) and (Ib) exemplified by corticosteroids and dehydroepiandrosterones, analogues thereof, and pharmaceutically or veterinarily acceptable salts thereof, such as dehydroepiandrosterone sulfate (DHEA-S), and salts of the corticosteroids, and/or a ubiquinone of chemical formula (II) as described above, the active agents being present in amounts effective to reduce or deplete adenosine levels, or reduce adenosine hypersensitivity, or to increase lung surfactant levels or ubiquinone tissue levels, or to inhibit or control a variety of respiratory, lung and other diseases and conditions in the subject. Examples of non-glucocorticoid steroids that may be used to carry out this method are represented by the chemical formula (Ia) shown above.

Another group of preferred steroids for use in this invention are described below. The hydrogen atom at position 5 of the compound of chemical formula (Ia) may be present in the alpha or beta configuration, and the compound may comprise a mixture of both configurations. Compounds illustrative of compounds of chemical formula (I) above include DHEA, wherein R and R_1 each comprise hydrogen and the double bond is present; 16-alpha bromodehydroepiandrosterone, where R comprises Br, R1 comprises H, and the double bond is present; 16-alpha-fluorodehydroepiandrosterone, wherein R comprises F, R1 comprises H and the double bond is present; etiocholanolone, where R and R1 each comprise hydrogen and the double bond is absent (the single bond is present); and dehydroepiandrosterone sulphate (DHEA-S), wherein R comprises H, R1 comprises SO_2OM and M comprises sulphatide as defined above, and the double bond is present, among others. In the compound of formula I, R preferably comprises halogen, e.g. bromo, chloro, or fluoro, R1 comprises hydrogen, and the double bond is present. Most preferably the compound of Formula I comprises dehydroepiandrosterone sulphate and 16-α-fluorodehydroepiandrosterone. The compounds of formula I may be made in accordance with procedures known in the art, or employing variations thereof that will be apparent to those skilled in the art. See, for example, U.S. Patent No. 4,956,355, UK Patent No. 2,240,472, EPO Patent Application No. 429,187, Patent Publication WO9104030A1; Abou-Gharbia M. et al., J. Pharm. Sci. 70: 1154-1157 (1981), Merck Index Monograph No. 7710, 11th Ed. (1989). Other preferred non-glucocorticoid steroids are those of the formulas (III) and (IV), wherein R15 and R16 together are =O, or where R5 is OH, or where R5 is –OSO2R20, or where R20 is H. Others, however, are also preferred and are encompassed by this patent.

"Corticosteroid", as used herein, means 21-carbon steroid hormone corticoids that bind to glucocorticoid receptors, having the chemical formula of (Ib). Corticosteroids are agonists for the glucocorticoid steroid receptor(s) and interact to promote a transcriptional response. The corticosteroids and other AIS may be used in conjunction with, and for reducing the amount of the oligo(s) employed for reducing inflammation and lung allergy(ies), reducing or depleting levels of, or reducing sensitivity to, adenosine, reducing adenosine receptor levels, producing bronchodilation, and/or for increasing levels of ubiquinone or lung surfactant in a subject, or for treating bronchoconstriction, lung inflammation or allergies or a respiratory or lung disease or condition. The anti-inflammatory steroid(s) may be administered per se or in the form of pharmaceutically acceptable salt, as discussed above. In general, the anti-inflammatory steroid(s), and its(their) salt(s) and crystal forms are suitable, and may be administered in a dosage of about 0.01, about 0.1, about 0.4, about 1, about 5, about 10, about 20 to about 4, about

30, about 70, about 100, about 300, about 1,000, about 3600 mg/kg body weight. These active compounds may be administered once or several times a day, or in any other regime, upon adjustment of the dose in accordance with the dosages of the other agents being administered.

The term "ubiquinone", as used herein, refers to a family of compounds having structures based on a ω 3-dimethoxy-5-methyl benzoquinone nucleus with a variable terpenoid acid chain containing on to twelve non-unsaturated trans-isoprenoid units. Such compounds are also known in the art as "Coenzyme Q_n", wherein n comprises 1 to 12, preferably n comprising 1 to 10, and may be referred to herein as compounds represented by the following chemical formula



(II)

wherein n comprises 1 to 10. In the method of the invention, another preferred ubiquinone is a compound according to the above formula, where n comprises 6 to 10, i.e. Coenzyme Q_{6-10}, and most preferably wherein n comprises 10, i.e. Coenzyme Q_{10}.

As discussed above, the "active agents or compounds" may be administered per se or in the form of pharmaceutically acceptable salts, or in the same formulation with the other active agents of the invention, e.g. corticosteroid(s) and/or ubiquinone(s) and the anti-sense oligo, either systemically or topically. In general, they are administered in an amount effective to treat respiratory conditions including bronchoconstriction, respiratory inflammation and allergies, allergic rhinitis, pulmonary hypertension and fibrosis, apnea, sepsis, emphysema, cancers, asthma, COPD, RDS, CF, ARDS, and the like, and/or to off-set lung surfactant depletion or ubiquinone depletion in the lungs and/or heart of the subject if induced by the administration of the anti-inflammatory steroid of the invention. The ubiquinone is preferably administered in a total amount per day of of about 0.1, about 1, about 5, about 10, about 15, about 30 to about 50, about 100, about 150, about 300, about 600, about 900, about 1200 mg/kg body weight per day. More preferred are about 1 to about 150 mg/kg, about 30 to about 100 mg/kg, and most preferred about 5 to about 50 mg/kg. The ubiquinone may be administered in one dose (once or several times a day), and its dose may be adjusted as is known in the art, depending on whether it is administered alone, or with the oligo and/or the anti-inflammatory steroid, and their amounts used. The dosage of the ubiquinone will vary depending upon the condition of the subject and route of administration. The ubiquinone may be administered by itself, or as a mixture of ubiquinones of varying side chain lengths, or concurrently, jointly prior to or subsequent to the anti-sense oligo and/or the anti-inflammatory steroid, for treating the overall symptoms described here, and/or the various diseases associated with them, including asthma, COPD, allergic rhinitis, pulmonary hypertension, vasoconstriction and fibrosis, and others described above. The phrase "concurrently administering", as used herein, means that the steroid, e. g. DHEA, DHEA-S or analogs of formulas (Ia) and (Ib), the anti-sense oligos, and the ubiquinone of chemical formula (II) are administered either (a) simultaneously in time, preferably by formulating the two active agents together in a common pharmaceutical carrier, or (b) at different times during the course of a common treatment schedule through the same or different routes of administration. In the latter case, for example the oligo may be administered once a week or its administration may be varied in accordance with its duration of action, while steroid(s) and ubiquinone(s) is(are) administered at times sufficiently close so that, in addition to its direct effect, the ubiquinone will be also off-setting any ubiquinone depletion in the subject's tissues, e. g. lungs and heart. This timing helps to prevent or counter-balance any deterioration of tissue, e. g. lung and heart, function that may result from the administration of the steroids or analogs thereof. Where the ubiquinone is formulated with a pharmaceutically acceptable carrier and other oral formulation components, it may be administered separately from the steroid and/or the oligo. For example, the steroid and the oligo may be administered into the respiration, by inhalation, nasally or into the lungs (by instillation) of the subject whereas the ubiquinone may be administered systemically. The ubiquinone may be formulated by any of the techniques set forth above.

The composition and formulations of this invention are highly efficacious for preventing and treating diseases and conditions associated with bronchoconstriction, difficult breathing, impeded and obstructed lung

airways, allergy(ies), inflammation and surfactant depletion, among others. Examples of diseases and conditions which are suitably treated by the present method are diseases and conditions, including Acute Respiratory Distress Syndrome (ARDS), asthma, adenosine administration e.g. in the treatment of SupraVentricular Tachycardia (SVT) and other arrhythmias, and in stress tests to hyper-sensitized individuals, ischemia, renal damage or failure induced by certain drugs, infantile respiratory distress syndrome, pain, cystic fibrosis, pulmonary hypertension, pulmonary vasoconstriction, emphysema, chronic obstructive pulmonary disease (COPD), lung transplantation rejection, pulmonary infections, and cancers such as leukemias, lymphomas, carcinomas, and the like, including colon cancer, breast cancer, lung cancer, pancreatic cancer, hepatocellular carcinoma, kidney cancer, melanoma, hepatic metastases, etc., as well as all types of cancers which may metastasize or have metastasized to the lung(s), including breast and prostate cancer. The invention will be mostly described with respect to the adenosine receptors as targets, although data on other targets is also provided, but is similarly applicable to any other target including the listed targets, with respect to the administration of anti-sense oligos. The examples provided below show a complete inhibition of adenosine receptor associated symptoms in a rabbit model for human bronchoconstriction, allergy(ies) and inflammation as well as the elimination of the ability of the adenosine receptor agonist par excellence, adenosine, to cause bronchoconstriction in hyper-responsive monkeys, which are animal models for human hyper-responsiveness to adenosine receptor agonists. The pharmaceutical composition and formulations of the invention, therefore, are suitable for preventing and alleviating the symptoms associated with stimulation of adenosine receptors, such as the adenosine A_1, A_{2a}, A_{2b}, and A_3 receptors, as well as other single or multiple targets. The compositions and formulations of this invention, thus, are also suitable for prevent the untoward side effects of adenosine-mediated hyperresponsiveness in certain individuals, which are generally seen in diseases affecting respiratory activity.

The method of the present invention may be used to treat airway and lung diseases and conditions in a subject of any kind and for any reason, for example, to reduced or eliminated with the intention that the adenosine content of anti-sense compounds, so as to prevent liberation of adenosine upon anti-sense degradation. Examples of diseases and conditions, which may be treated preventatively, prophylactically and therapeutically with the compositions and formulations of this invention, are pulmonary vasoconstriction, inflammation, allergies, asthma, allergic rhinitis, impeded respiration, Acute Respiratory Distress Syndrome (ARDS), renal damage and failure associated with ischemia as well as the administration of certain drugs, side effects associated with adenosine administration e.g. in SupraVentricular Tachycardia (SVT) and in adenosine stress tests, infantile Respiratory Distress Syndrome (infantile RDS), ARDS, pain, cystic fibrosis, pulmonary hypertension, pulmonary vasoconstriction, emphysema, chronic obstructive pulmonary disease (COPD), lung transplantation rejection, pulmonary infections, and cancers such as leukemias, lymphomas, carcinomas, and the like, e.g. colon cancer, breast cancer, lung cancer, pancreatic cancer, hepatocellular carcinoma, kidney cancer, melanoma, metastatic cancer such as hepatic metastases, lung, breast and prostate metastases, among others. The present compositions and formulations are suitable for administration before, during and after other treatments, including radiation, chemotherapy, antibody therapy, phototherapy and cancer, and other types of surgery. The present compositions and formulations may also be administered effectively as a substitute for therapies that have significant negative side effects. The terms "anti-sense" oligonucleotides generally refers to small, synthetic oligonucleotides, resembling single- and double-stranded DNA and RNA, which in this patent are applied to the inhibition of gene expression, e.g. by inhibition of a gene or target messenger RNA (mRNA). See, e.g. Milligan, J. F. et al., J. Med. Chem. 36(14), 1923-1937 (1993); Sharp, P.A. Genes & Development 15, 485-490, 2001; the relevant portion of which is hereby incorporated in its entirety by reference. For consistency's sake, all RNAs, DNAs and oligonucleotides are represented in this patent by a single strand in the 5' to 3' or 3' to 5' direction, when read from left to right, although their complementary and double-stranded sequence(s) is (are) also encompassed within the four corners of the invention. In addition, all nucleotide bases and amino acids are represented utilizing the recommendations of the IUPAC-IUB Biochemical Nomenclature Commission, or by the known 3-letter code (for amino acids). Nucleotide sequences are presented herein by single strand only, in the 5' to 3' direction, from left to right. In addition, nucleotide and amino acids are represented herein in the manner recommended by the IUPAC-IUB Biochemical Nomenclature Commission, or (for amino acids) by three letter code, in accordance with 37 CFR ' 1.822 and established usage. See, e.g., PatentIn User Manual, 99-102 (Nov. 1990) (U.S. Patent and Trademark Office, Office of the Assistant Commissioner for Patents, Washington, D.C. 20231); U.S. Patent No. 4,871,670 to Hudson et al. at col. 3, lines 20-43. The present method utilizes anti-sense agents to inhibit or down-regulate gene expression of

target genes, including those listed in Tables 1 and 2 below. This is generally attained by hybridization of the anti-sense oligonucleotides to coding (sense) sequences of a targeted messenger RNA (mRNA), as is known in the art. The oligos of this invention may be obtained by first selecting fragments of a target nucleic acid having at least 4 contiguous nucleic acids selected from the group consisting of G and C, and then obtaining a first oligonucleotide 4 to 70 nucleotides long which comprises the selected fragment and preferably has a C and G nucleic acid content of up to and including about 20%, about 15%. The oligonucleotide(s) (oligo(s)) may include at least one unmethylated cytosine-guanine (CpG) dinucleotide. The CpG dinucleotide may be substituted for a methylated cytosine present in the anti-sense oligonucleotide(s). The CpG dinucleotide is n immunostimulating sequence and affects the immune response in a subject by activating natural killer cells (NK) or redirecting a subject's immune response from a Th2 to a Th1 response by inducing monocytic and other cells to produce Th1 cytokines. The oligo(s) containing at least one unmethylated CpG can be used for treating and/or preventing respiratory and pulmonary diseases including bronchoconstriction, impaired airways, decreased lung surfactant, asthma, rhinitis, acute respiratory distress syndrome (ARDS), infantile or maternal RDS, chronic obstructive pulmonary disease (COPD), allergies, impeded respiration, lung pain, cystic fibrosis (CF), infectious diseases, cancers such as leukemias, lung and colon cancer, and the like, and diseases whose secondary effects afflict the lungs. A "CpG" or "CpG motif" refers to nucleotides having a cytosine followed by a guanine linked by a phosphate bond. The term "methylated CpG" refers to the methylation of the cytosine on the pyrimidine ring, usually occurring the 5-position of the pyrimidine ring. The term "unmethylated CpG" refers to the absence of methylation of the cytosine on the pyrimidine ring. Methylation, partial removal, or removal of an unmethylated CpG motif in an oligo(s) is believed to reduce its effect. Methylation or removal of all unmethylated CpG motifs in an oligo(s) substantially reduces its effect. The effect of methylation or removal of a CpG motif is "substantial" if the effect is similar to that of an oligonucleotide that does not contain a CpG motif. Preferably the CpG oligonucleotide is in the range of about 8 to 30 bases in size. The oligo(s) can be synthesized de novo using any of a number of procedures well known in the art. For example, the b-cyanoethyl phosphoramidite method (Beaucage, S. L., and Caruthers, M. H., Tet. Let. 22:1859, 1981); nucleoside H-phosphonate method (Garegg et al., Tet. Let. 27:4051-4054, 1986; Froehler et al., Nucl. Acid. Res. 14:5399-5407, 1986; Garegg et al., Tet. Let. 27:4055-4058, 1986, Gaffney et al., Tet. Let. 29:2619-2622, 1988). These chemistries can be performed by a variety of automated oligonucleotide synthesizers available in the market. Alternatively, CpG dinucleotides can be produced on a large scale in plasmids, (see Sambrook, T., et al., Molecular Cloning: A Laboratory Manual, Cold Spring Harbor laboratory Press, New York, 1989) which after being administered to a subject are degraded into an oligo(s). An oligo(s) can be prepared from existing nucleic acid sequences (e.g., genomic or cDNA) using known techniques, such as those employing restriction enzymes, exonucleases or endonucleases. The exogenously administered agents of the invention decrease the levels of mRNA and protein encoded by the target gene and/or cause changes in the growth characteristics or shapes of the thus treated cells. See, Milligan et al. (1993); Helene, C. and Toulme, J. Biochim. Biophys. Acta 1049, 99-125 (1990); Cohen, J. S. D., Ed., Oligodeoxynucleotides as Anti-sense Inhibitors of Gene Expression; CRC Press: Boca Raton, FL (1987), the relevant portion of which is hereby incorporated in its entirety by reference.

The treatment of this invention enhances the effects of the oligonucleotide and the anti-inflammatory steroid(s) and/or ubiquinone(s) by combining them, either simultaneously, sequentially or separately, for reducing or depleting levels of, or reducing sensitivity to, adenosine, reducing levels of receptor(s), producing bronchodilation, or for increasing levels of ubiquinone or lung surfactant in a subject's tissue (s), or treating bronchoconstriction, lung inflammation or allergies or a respiratory or lung disease or condition, and/or for alleviating bronchoconstriction or lung inflammation or allergy(ies), or ubiquinone or lung surfactant depletion or hyposecretion, in a subject. When administered in combination, the dose of the oligonucleotide or the steroid(s) orubiquinone(s) may be decreased since they potentiate each other's effect. These agents may be administered before, simultaneously with, and/or after each other's administration. Accordingly, the details of administration of the effect enhancer including its amount, route, formulation, method, target organ and/or tissue may be determined as described throughout this specification. Similarly, other therapeutic or bioactive agents may be employed in accordance with this invention. Kits comprising the various agents described above are also part of this invention.

As used herein, "anti-sense oligonucleotide or anti-sense oligo" is generally a short sequence of synthetic nucleotide that hybridizes to any segment of a mRNA encoding a targeted protein under appropriate hybridization conditions and which, upon hybridization, causes a decrease in gene expression of the targeted protein. The terms "desAdenosine" (desA),"des-thymidine" (desT) and "des-uridine (desU) refer to oligonucleotides substantially

lacking either adenosine (desA) or thymidine (desT) (uracil (desU)). In some instances, the desA or desT (desU) sequences are naturally occurring, and in others they may result from substitution of an undesirable nucleotide (A) by another lacking its undesirable activity, such as acting as an agonist or having a triggering effect at the adenosine A receptor(s). In the present context, the substitution is generally accomplished by substitution of A with a "universal or alternative base", presently known in the art or to be ascertained at a later time. As used herein, the terms "prevent", "preventing", "treat" or "treating" refer to a preventative, prophylactic, maintenance, or therapeutic treatment which decreases the likelihood that the subject administered such treatment will manifest symptoms associated with adenosine receptor stimulation. The term "down-regulate" refers to inducing a decrease in production, secretion or availability and, thus, a decrease in concentration, of intracellular target product, be it a receptor, e. g. adenosine A_1, A_{2b}, A_3, bradykinin 2B, GATA-3, or other receptors, or produce a stimulatory effect on a receptor such as the adenosine A_{2a} receptor. The present technology relies on the design of anti-sense oligos targeted to genea and mRNAs associated with ailments involving nasal and lung airway(s) (respiratory tract) pathology(ies), and on their modification to reduce the potential occurrence of undesirable side effects caused by their release of adenosine upon breakdown, while preserving their activity and efficacy for their intended purpose. In this manner, the inventor targets a specific gene to design one or more anti-sense single or double stranded DNA or RNA oligonucleotide(s) (oligos) that selectively bind(s) to the corresponding gene or mRNA, and then reduces, if necessary, their content of adenosine via substitution with an alternative or a universal base, or an adenosine analog incapable of significantly, or having substantially reduced ability for, activating or antagonizing adenosine A_1, A_{2b} or A_3 receptors or which may act as an agonist at the adenosine A_{2a} receptor. Any number of adenosines present may be substituted by an alternative and/or universal base, such as heteroaromatic bases, which binds to a thymidine or uridine base but has less than about 0.3 of the adenosine base agonist or antagonist activity at the adenosine A_1, A_{2a}, A_{2b} and A_3 receptors. Based on his prior experience in the field, the inventor reasoned that in addition to "downregulating" specific genes, he could increase the effect of the agent(s) administered by either selecting segments of RNA that are devoid, or have a low content, of thymidine (T) or uridine (U), or alternatively, substitute one or more adenosine(s) present in the designed oligonucleotide(s) with other nucleotide bases, so called universal bases, which bind to thymidine but lack the ability to activate adenosine receptors and otherwise exercise the constricting effect of adenosine in the lungs, etc. Given that adenosine (A) is a nucleotide base complementary to thymidine (T) or uridine (U), wherein when a U appears in the RNA, the anti-sense oligo will have an A at the same position.

In one aspect of this invention, the anti-sense oligonucleotide has a sequence which specifically binds to a portion or segment of a mRNA molecule which encodes or regulates the production of a protein associated with impeded breathing, allergy(ies), lung inflammation, depletion of lung surfactant or lowering of lung surfactant, airway obstruction, bronchitis, and the like. One effect of this binding is to reduce or even prevent the translation of the corresponding mRNA and, thereby, reduce the available amount of target protein in the subject's lung. In one preferred embodiment of this invention, the phosphodiester residues of the anti-sense oligonucleotide are modified or substituted. Chemical analogs of oligonucleotides with modified or substituted phosphodiester residues, e.g., to the methylphosphonate, the phosphotriester, the phosphorothioate, the phosphorodithioate, or the phosphoramidate, 2′ methoxy ethyl and similar modifications, which increase the in vivo stability of the oligonucleotide are particularly preferred. The naturally occurring phosphodiester linkages of oligonucleotides are susceptible to some degree of degradation by cellular nucleases. Many of the residues proposed herein, on the contrary, are highly resistant to nuclease degradation. See, Milligan et al.; Cohen, J. S. D., supra. In another preferred embodiment of the invention, the oligonucleotides may be protected from degradation by adding a "3'-end cap" by which nuclease-resistant linkages are substituted for phosphodiester linkages at the 3' end of the oligonucleotide. See, Tidd, D. M. and Warenius, H.M., Be. J. Cancer 60: 343-350 (1989); Shaw, J.P. et al., Nucleic Acids Res. 19: 747-750 (1991), the relevant section of which are incorporated in their entireties herein by reference. Phosphoramidates, phosphorothioates, and methylphosphonate linkages all function adequately in this manner for the purposes of this invention, as do 2′ modifications, such as 2′ methoxy ethyl, and the like. The more extensive the modification of the phosphodiester backbone the more stable the resulting agent, and in many instances the higher their RNA affinity and cellular permeation. See, Milligan, et al., supra. In addition, a plurality of substitutions to the carbohydrate ring are also known to improve stability of nucleic acids. Thus, the number of residues which may be modified or substituted will vary depending on the need, target, and route of administration, and may be from 1 to all the residues, to any number in between. Many different methods for replacing the entire phosphodiester backbone with

novel linkages are known. See, Millikan et al, supra. Preferred backbone analogue residues include phosphoramidate, phosphorothioate, methylphosphonate, phosphorotriester, phosphotriester, thioformacetal, phosphorodithioate, phosphoramidate, formacetal, triformacetal, thioether, carbamate, boranophosphate, 3'-thioformacetal, 5'-thioether, carbonate, C_5-substituted nucleotides, 5'-N-carbamate, sulfate, sulfonate, sulfamate, sulfonamide, sulfone, sulfite, 2'-O methyl, sulfoxide, sulfide, hydroxylamine, methylene(methylimino) (MMI), methoxymethyl (MOM), and methoxyethyl (MOE), and methyleneoxy(methylimino) (MOMI) residues, and combinations thereof. Phosphorothioate and methylphosphonate-modified oligonucleotides are particularly preferred due to their availability through automated oligonucleotide synthesis. See, Millikan et al, supra. Where appropriate, the agent of this invention may be administered in the form of their pharmaceutically acceptable salts, or as a mixture of the anti-sense oligonucleotide and its salt. In another embodiment of this invention, a mixture of different anti-sense oligonucleotides or their pharmaceutically acceptable salts is administered. A single agent of this invention has the capacity to attenuate the expression of a target mRNA and/or various agents to enhance or attenuate the activity of a pathway. By means of example, the present method may be practiced by identifying all possible deoxyribonucleotide segments which are low in thymidine (T), ribonucleotides that are low in uridine (U), or deoxynucleotide segments low in adenosine (A) of about 7 or more mononucleotides, preferably up to about 60 mononucleotides, more preferably about 10 to about 36 mononucleotides, and still more preferably about 12 to about 21 mononucleotides, in a target mRNA or a gene, respectively. This may be attained by searching for nucleotide segments within a target sequence which are low in, or lack thymidine (DNA) or uridine (RNA), a nucleotide which is complementary to adenosine, or that are low in adenosine (gene), that are 7 or more nucleotides long. In most cases, this search typically results in about 10 to 30 such sequences, i.e. naturally lacking or having less than about 40% adenosine, anti-sense oligonucleotides of varying lengths for a typical target mRNA of average length, i.e., about 1800 nucleotides long. Those with high content of T, U or A, respectively, may be fixed by substitution of a universal base for one or more As. The agent(s) of this invention may be of any suitable length, including but not limited to, about 7 to about 60 nucleotides long, preferably about 12 to about 45, more preferably up to about 30 nucleotides long, and still more preferably up to about 21, although they may be of other lengths as well, depending on the particular target and the mode of delivery. The agent(s) of the invention may be directed to any and all segments of a target RNA. One preferred group of agent(s) includes those directed to an mRNA region containing a junction between an intron and an exon. Where the agent is directed to an intron/exon junction, it may either entirely overlie the junction or it may be sufficiently close to the junction to inhibit the splicing-out of the intervening exon during processing of precursor mRNA to mature mRNA, e.g. with the 3' or 5' terminus of the anti-sense oligonucleotide being positioned within about, for example, within about 2 to 10, preferably about 3 to 5, nucleotide of the intron/exon junction. Also preferred are anti-sense oligonucleotides which overlap the initiation codon, and those near the 5' and 3' termini of the coding region. The flanking regions of the exons may also be targeted as well as the spliced segments in the precursor mRNAs. The mRNA sequences of the adenosine receptors and of many other targets are derived from the DNA base sequence of the gene expressing either receptors, e. g. the adenosine receptors, the enzymes, factors, or other targets associated with airway disease. For example, the sequence of the genomic human A_1 adenosine receptor is known and is disclosed in U.S. Patent No. 5,320,963 to Stiles, G., et al. The A_3 adenosine receptor has been cloned, sequenced and expressed in rat (see, Zhou, F., et al., P.N.A.S. (USA) 89: 7432 (1992)) and human (see, Jacobson, M. A., et al., U.K. Patent Application No. 9304582.1 (1993)). The sequence of the adenosine A_{2b} receptor gene is also known. See, Salvatore, C. A., Luneau, C. J., Johnson, R. G. and Jacobson, M., Genomics (1995), the relevant portion of which is hereby incorporated in its entirety by reference. The sequences of many of the remaining exemplary target genes are also known. See, GenBank, NIH. The sequences of those genes whose sequences are not yet available may be obtained by isolating the target segments applying technology known in the art. Once the sequence of the gene, its RNA and/or the protein are known, an anti-sense oligonucleotides may be produced according to this invention as described above to reduce the production of the targeted protein in accordance with standard techniques. The sequences for the adenosine A_{2a} bradykinin, and other genes as well as methods for preparation of oligonucleotides are also known as those of many other target genes and mRNAs for which this invention is suitable. Thus, anti-sense oligonucleotides that downregulate the production of target sequences associated with airway disease, including the adenosine A_1, A_{2a}, A_{2b}, A_3, bradykinin, GATA-3, COX-2, and many other receptors, may be produced in accordance with standard techniques. Examples of diseases and conditions which are suitably treated by the present method are diseases and conditions, including Acute Respiratory Distress Syndrome (ARDS), asthma, adenosine administration e.g. in the

treatment of SupraVentricular Tachycardia (SVT) and other arrhythmias, and in stress tests to hyper-sensitized individuals, ischemia, renal damage or failure induced by certain drugs, infantile respiratory distress syndrome, pain, cystic fibrosis, pulmonary hypertension, pulmonary vasoconstriction, emphysema, chronic obstructive pulmonary disease (COPD), pulmonary transplantation rejection, pulmonary infections, and cancers such as leukemias, lymphomas, carcinomas, and the like, including colon cancer, breast cancer, lung cancer, pancreatic cancer, hepatocellular carcinoma, kidney cancer, melanoma, hepatic metastases, etc., as well as all types of cancers which may metastasize or have metastasized to the lung(s), including breast and prostate cancer.

The adenosine receptors discussed above are mere examples of the high power of the inventor's technology. In fact, a large number of genes may be targeted in a similar manner by the present agent(s), to reduce or down-regulate protein expression. This targeting may be attained by selecting a single target, or multiple targets. In the latter case, the oligos targeted to different sequences may be mixed for their administration or they may be multiple targeted anti-sense oligos (MTAs) in accordance with one embodiment of this invention; that is, the MTA sequence binds to more than one target polynucleotide, be it DNA or RNA. By means of example, if the target disease or condition is one associated with impeded or reduced breathing, bronchoconstriction, chronic bronchitis, pulmonary bronchoconstriction and/or hypertension, chronic obstructive pulmonary disease (COPD), pulmonary transplantation rejection, pulmonary infections, allergy, asthma, cystic fibrosis, respiratory distress syndrome, cancers, which either directly or by metastasis afflict the lung, the present method may be applied to a list of potential target mRNAs, which includes the targets listed in Table 1 and Table 2 below, among others. The anti-sense agent(s) of the invention have a low A content to prevent its liberation upon in vivo degradation of the agent(s). For example, if the system is the pulmonary or respiratory system, a large number of genes is involved in different functions, including those listed in Table 1 below.

Table 1: Pulmonary and Inflammatory Targets

NFκB Transcription Factor	Interleukin-8 Receptor (IL-8 R)
Interleukin-5 Receptor (IL-5R)	Interleukin-4 Receptor (IL-4R)
Interleukin-3 Receptor (IL-3R)	Interleukin-1β (IL-1β)
Interleukin-1β Receptor (IL-1βR)	Eotaxin
Tryptase	Major Basic Protein
β2-adrenergic Receptor Kinase	Endothelin Receptor A
Endothelin Receptor B	Preproendothelin
Bradykinin B2 Receptor (B2BR)	IgE (High Affinity Receptor)
Interleukin-1 (IL-1)	Interleukin 1 Receptor (IL-1 R)
Interleukin-9 (IL-9)	Interleukin-9 Receptor (IL-9 R)
Interleukin-11 (IL-11)	Interleukin-11 Receptor (IL-11 R)
Inducible Nitric Oxide Synthase	Cyclooxygenase (COX)
Intracellular Adhesion Molecule 1 (ICAM-1)	Vascular Cellular Adhesion Molecule
Substance P	(VCAM)
Rantes	Endothelial Leukocyte Adhesion Molecule Endothelin ETA Receptor (ELAM-1)
Cyclooxygenase-2 (COX-2)	GM-CSF, Endothelin-1
Monocyte Activating Factor	Neutrophil Chemotactic Factor
Neutrophil Elastase	Defensin 1,2,3
Muscarinic Acetylcholine Receptors	Platelet Activating Factor
Tumor Necrosis Factor α	5-lipoxygenase
Phosphodiesterase IV	Substance P
Substance P Receptor	Histamine Receptor
Chymase	CCR-1 CC Chemokine Receptor
Interleukin-2 (IL-2)	Interleukin-4 (IL-4)
Interleukin-12 (IL-12)	Interleukin-5 (IL-5)
Interleukin-6 (IL-6)	Interleukin-7 (IL-7)
Interleukin-8 (IL-8)	Interleukin-12 Receptor (IL-12R)
Interleukin-7 Receptor (IL-7R)	Interleukin-1 (IL-1)

Interleukin-14 Receptor (IL-14R)	Interleukin-14
CCR-2 CC Chemokine Receptor	CCR-3 CC Chemokine Receptor
CCR-4 CC Chemokine Receptor	CCR-5 CC Chemokine Receptor
Prostanoid Receptors	GATA-3 Transcription Factor
Neutrophil Adherence Receptor	MAP Kinase
Interleukin-15 (IL-15)	Interleukin-15 Receptor (IL-15R)
Interleukin-11 (IL-11)	Interleukin-11 Receptor (IL-11R)
NFAT Transcription Factors	STAT 4
MIP-1α	MCP-2
MCP-3	MCP-4
Cyclophillin (A, B, etc.)	Phospholipase A2
Basic Fibroblast Growth Factor	Metalloproteinase
CSBP/p38 MAP Kinase	Tryptase Receptor
PDG2	Interleukin-3 (IL-3)
Interleukin-10 (IL-10)	Cyclosporin A - Binding Protein
FK506-Binding Protein	$\alpha 4\beta 1$ Selectin
Fibronectin	$\alpha 4\beta 7$ Selectin
cMad CAM-1	LFA-1 (CD11a/CD18)
PECAM-1.	LFA-1 Selectin
C3bi	PSGL-1
E-Selectin	P-Selectin
CD-34	L-Selectin
p150,95	Mac-1 (CD11b/CD18)
Fucosyl transferase	VLA-4
STAT-1	STAT-2
CD-18/CD11a	CD11b/CD18
ICAM2 and ICAM3	C5a
CCR3 (Eotaxin Receptor)	CCR1, CCR2, CCR4, CCR5
LTB-4	AP-1 Transcription Factor
Protein kinase C	Cysteinyl Leukotriene Receptor
Tachykinnen Receptors (tach R)	IκB Kinase 1 & 2
Interleukin-2 Receptor (IL-2R)	(e.g., Substance P, NK-1 & NK-3 Receptors)
STAT 6	c-mas
NF-Interleukin-6 (NF-IL-6)	Interleukin-10 Receptor (IL-10R)
Interleukin-3 (IL-3)	Interleukin-2 Receptor (IL-2R)
Interleukin-13 (IL-13)	Interleukin-12 Receptor (IL-12R)
Interleukin-14 (IL-14)	Interleukin-6 Receptor (IL-6R)
Interleukin-16 (IL-16)	Interleukin-13 Receptor (IL-13R)
Medullasin	Interleukin-16 Receptor (IL-16R)
Adenosine A_1 Receptor (A_1 R)	Tryptase-I
Adenosine A_{2b} Receptor (A_{2b} R)	Adenosine A_3 Receptor (A_3 R)
β Tryptase	STAT-3
Adenosine A_{2a} Receptor (A_{2a} R)	IgE Receptor β Subunit (IgE R β)
Fc-epsilon receptor CD23 antigen	IgE Receptor α Subunit (IgE R α)
IgE Receptor Fc Epsilon Receptor (IgERFc ξ R)	Substance P Receptor
Histidine decarboxylase	Tryptase-1
Prostaglandin D Synthase	Eosinophil Cationic Protein
Eosinophil Derived Neurotoxin	Eosinophil Peroxidase
Endothelial Nitric Oxide Synthase	Endothelial Monocyte Activating Factor
Neutrophil Oxidase Factor	Cathepsin G
Macrophage Inflammatory Protein-1-Alpha/Rantes Receptor	Interleukin-8 Receptor α Subunit (IL-8 Rα)
	Endothelin Receptor ET-B

H2A histone family, member N
Tubulin, beta polypeptide
ELL gene (11-19 lysine-rich leukemia gene)
7-dehydrocholesterol reductase
ADP-ribosylation factor-like 7
Karyopherin alpha 2 (RAG cohort 1, importin alpha 1)
EST (AI038433)
EST (AI122689)
EST (AI092623)
ESTs (AI095492)
ESTs (AI138216)
ESTs (AI128305)
ESTs (AI125228)
ESTs (AI041482)
ESTs (AI051839)
Homo sapiens mRNA; cDNA DKFZp434A1716
ESTs (AI096522)
ESTs (AI122807)
ESTs (AI041212)
EST (AI125651)
Enolase 1, (alpha)
EST (AI024215)
EST (AI034360)
Homo sapiens mRNA; cDNA DKFZp564H0764
Homo sapiens mRNA for KIAA1363 protein, partial cds
Potassium voltage-gated channel, shaker-related subfamily, beta member 2
ER-associated DNAJ; ER-associated Hsp40 co-chaperone; hDj9; ERj3
ESTs, Weakly similar to p38 protein [H.sapiens] (AA906703)
CGI-142
ESTs (AA463249)
Homo sapiens clone 25058 mRNA sequence
ESTs (R49144)
Squamous cell carcinoma antigen 1
ESTs (AA425700)
Myosin X
ESTs (AA459692)
Epithelial protein lost in neoplasm beta
CD44 antigen (homing function and Indian blood group system)
Coagulation factor III (thromboplastin, tissue factor)
ESTs (AA909635)
Adducin 1 (alpha)
5' Nucleotidase (CD73)
ESTs, Moderately similar to semaphorin C [M.musculus] (AA293300)
ESTs (AA278764)
ESTs (AA678160)
Calmodulin 2 (phosphorylase kinase, delta)
ESTs (R42770)
Chloride intracellular channel 1
High-mobility group (nonhistone chromosomal) protein 17
Ubiquitin carrier protein
Tubulin, alpha 1 (testis specific)
Transglutaminase 2 (C polypeptide, protein-glutamine-gamma-glutamyltransferase)
Sparc/osteonectin, cwcv and kazal-like domains proteoglycan (testican)
Proteasome (prosome, macropain) 26S subunit, non-ATPase, 2
Tubulin, beta polypeptide
Filamin B, beta (actin-binding protein-278)
Stanniocalcin
Low density lipoprotein receptor (familial hypercholesterolemia)
Plectin 1, intermediate filament binding protein, 500kD
S100 calcium-binding protein A2
Immediate early response 3
Calpain, large polypeptide L2
Pleckstrin homology-like domain, family A, member 1
Melanoma adhesion molecule
CD44 antigen (homing function and Indian blood group system)
Programmed cell death 5
Hexokinase 1
Vascular endothelial growth factor
Integrin, alpha 2 (CD49B, alpha 2 subunit of VLA-2 receptor)
Calumenin
Syntaxin 11
Diphtheria toxin receptor (heparin-binding epidermal growth factor-like growth factor)
Fn14 for type I transmenmbrane protein
Nef-associated factor 1
High-mobility group (nonhistone chromosomal) protein isoforms I and Y
Catechol-O-methyltransferase
C-terminal binding protein 1
Collagen, type XVII, alpha 1
ESTs (N58473)
Farnesyl-diphosphate farnesyltransferase 1
RNA helicase-related protein
Interferon stimulated gene (20kD)
Steroid-5-alpha-reductase, alpha polypeptide 1 (3-oxo-5 alpha-steroid delta 4-dehydrogenase alpha 1)
Prostaglandin-endoperoxide synthase 2 (prostaglandin G/H synthase and cyclooxygenase)

Laminin, alpha 3 (nicein (150kD), kalinin (165kD), BM600 (150kD), epilegrin)
Collagen, type XVII, alpha 1 Keratin 18
Heparan sulfate (glucosamine) 3-O-sulfotransferase 1
Tubulin, alpha 2 Adenylyl cyclase-associated protein
Forkhead box D1 Cathepsin C
ESTs, Highly similar to AF151802_1 CGI-44 protein [H.sapiens] (T74688)
Ribonucleotide reductase M2 polypeptide
Laminin, gamma 2 (nicein (100kD), kalinin (105kD), BM600 (100kD), Herlitz junctional epidermolysis bullosa))
Homo sapiens mRNA; cDNA DKFZp586P1622 (from clone DKFZp586P1622)
ESTs, Weakly similar to /prediction (AA284245)
Lactate dehydrogenase A

Note that in the parantheses after "EST(s)" is GENABNK ACESSION NO.

These genes, and others, are involved in the normal functioning of respiration as well as in diseases associated with respiratory pathologies, including cystic fibrosis, asthma, pulmonary hypertension and vasoconstriction, chronic obstructive pulmonary disease (COPD), pulmonary transplantation rejection, pulmonary infections, chronic bronchitis, respiratory distress syndrome (ARDS), allergic rhinitis, lung cancer and lung metastatic cancers and other airway diseases, including those with inflammatory response.

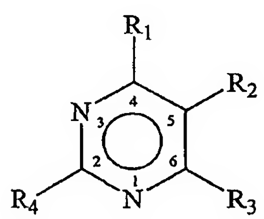
Anti-sense oligos to the target receptors, e. g. the adenosine A_1, A_{2a}, A_{2b}, and A_3 receptors, CCR3 (chemokine receptors), bradykinin 2B, VCAM (vascular cell adhesion molecule), and eosinophil receptors, among others, have been shown to be effective in down-regulating the expression of their genes. Some of these act to alleviate the symptoms or reduce respiratory ailments and/or inflammation, for example, by "down regulation" of the adenosine A_1, A_{2a}, A_{2b}, and/or A_3 receptors and CCR3, bradykinin 2B, VCAM (vascular cell adhesion molecule) and eosinophil receptors. These agents may be utilized by the present method alone or in conjunction with anti-sense oligos targeted to other genes to validate pathway and/or networks in which they are involved. For better results, the oligos are preferably administered directly into the respiratory system, e.g., by inhalation or other means, of the experimental animal, so that they may reach the lungs without widespread systemic dissemination. This permits the use of low agent doses as compared with those administered systemically or by other generalized routes and, consequently, reduces the number and degree of undesirable side effects resulting from the agent's widespread distribution in the body. The agent(s) of this invention has (have) been shown to reduce the amount of receptor protein expressed by the tissue. These agents, thus, rather than merely interacting with their targets, e.g. a receptor, lower the number of target proteins that other drugs may interact with. In this manner, the present agent(s) afford(s) extremely high efficacy with low toxicity. Anti-sense oligonucleotides to the A_1 , A_{2b}, A_3, bradykinin B2, GATA-3, VCAM (vascular cell adhesion molecule), eosinophil receptors, and COX-2 receptors, among others, have been shown to be effective in the down-regulation of the respective receptor proteins in the cell. One novel feature of this treatment, as compared to traditional treatments for adenosine-mediated bronchoconstriction, is that administration is direct to the lungs, or in situ to other tissues, organs or systems of the body. Additionally, a receptor protein itself is reduced in amount, rather than merely interacting with a drug, and toxicity is reduced. Other proteins that may be targeted with anti-sense agents for the treatment of lung conditions include, but are not limited to: CCR3 (chemokine) receptors, human A_{2a} adenosine receptor, human A_{2b} adenosine receptor, human IgE receptor β, human Fc-epsilon receptor CD23 antigen, human histidine decarboxylase, human beta tryptase, human tryptase-I, human prostaglandin D synthase, human cyclooxigenase-2, human eosinophil cationic protein, human eosinophil derived neurotoxin, human eosinophil peroxidase, human intercellular adhesion molecule-1 (ICAM-1), human vascular cell adhesion molecule-1 (VCAM-1), human endothelial leukocyte adhesion molecule-1 (ELAM-1), human P selectin, human endothelial monocyte activating factor, human IL-3, human IL-4, human IL-5, human IL-6, human IL-8, human monocyte-derived neutrophil chemotactic factor, human neutrophil elastase, human neutrophil oxidase factor, human cathepsin G, human defensin 1, human defensin 3, human macrophage inflammatory protein-1-alpha, human muscarinic acetylcholine receptor HM3, human fibronectin, human GM-CSF, human tumor necrosis factor α, human leukotriene C4 synthase, human major basic protein, and human endothelin 1. Although not intended to be exclusive, a more extensive list of genes and sequences are provided below. Some of these act to alleviate the symptoms or reduce respiratory ailments and/or inflammation, for example, by "down regulation" of the adenosine A_1, A_{2a}, A_{2b}, and/or A_3 receptors and CCR3, bradykinin 2B, VCAM (vascular cell adhesion molecule) and eosinophil receptors. These agents are preferably administered directly into the respiratory system, e.g., by

inhalation or other means, so that they may reach the lungs without widespread systemic dissemination. This permits the use of substantially lower doses of the agent of the invention as compared with those administered by the prior art, systemically or by other generalized routes and, consequently, reduce undesirable side effects resulting from the agent's widespread distribution in the body. The agent(s) of this invention has (have) been shown to reduce the amount of receptor protein expressed by the tissue. These agents, thus, rather than merely interacting with their targets, e.g. a receptor, lower the number of target proteins that other drugs may interact with. In this manner, the present agent(s) afford(s) extremely high efficacy with low toxicity. In these latter targets, and in target genes in general, it is particularly imperative to eliminate or reduce the adenosine content of the corresponding anti-sense oligonucleotide to prevent their breakdown products from liberating adenosine.

As used herein, the term "treat" or "treating" refers to a treatment which decreases the likelihood that the subject administered such treatment will manifest symptoms of the respiratory, lung or other diseases. The term "downregulate" refers to inducing a decrease in production, secretion or availability (and thus a decrease in concentration) of the targeted intracellular protein. The present invention is concerned primarily with the treatment of human subjects. However, the agents and methods disclosed here may also be employed for veterinary purposes, such as is the case in the treatment of other mammals, such as cattle, horses, wild animals, zoo animals, and domestic animals, e. g. dogs and cats. Targeted proteins may be prokaryotic or eukaryotic or mammalian and more preferably of the same species as the subject being treated. In general, "anti-sense" refers to the use of small, synthetic oligonucleotides, resembling single-stranded DNA, to inhibit gene expression by inhibiting the function of the target messenger RNA (mRNA). Milligan, J. F. et al., J. Med. Chem. 36(14), 1923-1937 (1993). In the present invention, inhibition of gene expression of the A_1 or A_3 adenosine receptor is desired. Gene expression is inhibited through hybridization to coding (sense) sequences in a specific messenger RNA (mRNA) target by hydrogen bonding according to Watson-Crick base pairing rules. The mechanism of anti-sense inhibition is that the exogenously applied oligonucleotides decrease the mRNA and protein levels of the target gene or cause changes in the growth characteristics or shapes of the cells. Id. See, also Helene, C. and Toulme, J., Biochim. Biophys. Acta 1049, 99-125 (1990); Cohen, J. S. D., Ed., Oligodeoxynucleotides as Anti-sense Inhibitors of Gene Expression; CRC Press: Boca Raton, FL (1987). As used herein, "anti-sense oligonucleotide" is defined as a short sequence of synthetic nucleotide that (1) hybridizes to any sense or anti-sense sequence in a mRNA or DNA which codes for the targeted protein or their double stranded counterparts, according to in vitro or in vivo hybridization conditions, described below, and (2) upon hybridization causes a decrease in gene expression of the target, e.g. adenosine or other receptor(s). The receptors discussed above are mere examples of the high power of the present technology. In fact, a large number of genes and mRNAs may be targeted in a similar manner by the present methods, to significantly down-regulate or obliterate their protein expression and observe any changes wrought to one or more functions within a system, e.g. the respiratory system and other lung disease associated targets. By means of example, in the respiratory system, the targets may be associated with difficulties of breathing, bronchoconstriction, inflammation, allergic rhinitis, chronic bronchitis, surfactant depletion, and others associated with diseases and conditions such as chronic obstructive pulmonary disease (COPD), pulmonary transplantation rejection, pulmonary infections, inhalation burns, Acute Respiratory Distress Syndrome (ARDS), cystic fibrosis, pulmonary fibrosis, radiation pulmonitis, tonsilitis, emphysema, dental pain, oral inflammation, joint pain, esophagitis, cancers afflicting the respiratory system either directly such as lung cancer, esophageal cancer, and the like, or indirectly by means of metastases, among others. These functions are of great interest because of their association with respiratory dysfunction, as is the case in asthma, allergies, allergic rhinitis, pulmonary bronchoconstriction and hypertension, chronic obstructive pulmonary disease (COPD), pulmonary transplantation rejection, pulmonary infections, allergy, asthma, cystic fibrosis (CF), Acute Respiratory Distress Syndrome (ARDS) as well as infantile and pregnancy-related RDS, cancer, etc., which either directly or by metastasis afflict the lung, the present anti-sense oligonucleotides may be directed to a list of target mRNAs, which includes the targets listed in Table 1 above, among others.

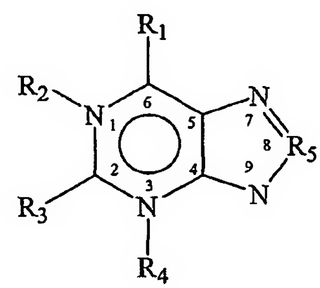
Oligonucleotides, whether DNA or RNA, may be synthesized by methods known in the art that need not be further described here. The low adenosine oligos of this invention may be obtained by first selecting fragments of a target nucleic acid having at least 4 contiguous nucleic acids selected from the group consisting of G and C and/or having a specific type and/or extent of activity, and then obtaining a first oligonucleotide 4 to 60 nucleotides long which comprises the selected fragment and has a thymidine (T) or uridine (U) nucleic acid content of up to and including about 15%, preferably, about 12%, about 10%, about 7%, about 5%, about 3%, about 1%, and more

preferably no thymidine or uridine. In one preferred embodiment, oligo(s) have a higher than natural content of Cs and Gs (orCpGs) to produce immunostimulation. The latter step may be conducted by obtaining a second oligonucleotide 4 to 60 nucleotides long comprising a sequence which is anti-sense to the selected fragment, the second oligonucleotide having an adenosine base content of up to and including about 15%, preferably about 12%, about 10%, about 7%, about 5%, about 3%, about 1%, and more preferably no adenosine. When the selected fragment comprises at least one thymidine or uridine base, an adenosine base may be substituted in the corresponding anti-sense nucleotide fragment with a universal base selected from the group consisting of heteroaromatic bases which bind to a thymidine or uridine base but have less than about bout 10%, preferably less than about 1%, and more preferably less than about 0.3% of the adenosine base agonist activity at the adenosine A_1, A_{2a}, A_{2b} and A_3 receptors, and heteroaromatic bases which have no activity at the adenosine A_{2a} receptor, when validating in the respiratory system. Other adenosine activities in other systems may be determined in other systems, as appropriate. The analogue heteroaromatic bases may be selected from all pyrimidines and purines, which may be substituted by O, halo, NH_2, SH, SO, SO_2, SO_3, COOH and branched and fused primary and secondary amino, alkyl, alkenyl, alkynyl, cycloalkyl, heterocycloalkyl, aryl, heteroaryl, alkoxy, alkenoxy, acyl, cycloacyl, arylacyl, alkynoxy, cycloalkoxy, aroyl, arylthio, arylsulfoxyl, halocycloalkyl, alkylcycloalkyl, alkenylcycloalkyl, alkynylcycloalkyl, haloaryl, alkylaryl, alkenylaryl, alkynylaryl, arylalkyl, arylalkenyl, arylalkynyl, arylcycloalkyl, which may be further substituted by O, halo, NH_2, primary, secondary and tertiary amine, SH, SO, SO_2, SO_3, cycloalkyl, heterocycloalkyl and heteroaryl. The pyrimidines and purines may be substituted at all positions as is known in the art, but preferred are purines that are substituted at positions 1, 2, 3, 6 and/or 8, and pyrimidines that are substituted at 2, 3, 4, 5 and/or 6. More preferred are pyrimidines and purines such as those having the chemical formula



pyrimidines

or



purines

PYRIMIDINES

wherein R^1, R^2, R^3, R^4, and R^5 are independently H, alkyl, alkenyl or alkynyl and R^3 is H, aryl, dicycloalkyl, dicycloalkenyl, dicycloalkynyl, cycloalkyl, cycloalkenyl, cycloalkynyl, O-cycloalkyl, O-cycloalkenyl, O-cycloalkynyl, NH_2-alkylamino-ketoxyalkyloxy-aryl, or mono or dialkylaminoalkyl-N-alkylamino-SO_2aryl, and R4 and R5 are independently R1 and together are R3, and the pyrimidines and purines optionally comprise theophylline, caffeine, dyphylline, etophylline, acephylline piperazine, bamifylline, enprofylline or xantine, among others. Similar modifications in the sugar are also embodiments of this invention. Reduced adenosine content of the anti-sense oligos corresponding to the thymidines (T) present in the target DNA or uridines (U) in the target RNA serves to prevent the breakdown of the oligos into products that free adenosine into the system, e.g. the lung, brain, heart, kidney, etc., tissue environment and, thereby, to prevent any unwanted effects due to it. By means of example, the NfκB transcription factor may be selected as a target, and its mRNA or DNA searched for low thymidine (T), low uridine (U) or desthymidine (desT) or desuridine (desU) fragments. Only desU and desT segments of the mRNA or DNA are selected which, in turn, will produce desA anti-sense as their complementary strand. When a number of DNA or RNA that are desT or desU segments are found, the sequence of the anti-sense segments may be deduced. Typically, about 10 to 30 and even larger numbers of desA anti-sense sequences may be obtained. These anti-sense sequences may include some or all desA anti-sense oligonucleotide sequences

corresponding to desU or desT segments of the mRNA or DNA of the target, such as anyone of those shown in Table 1 above, in Table 2 below, and others associated with functions of the brain, cardiovascular and renal systems, and many others. For each of the original desA anti-sense oligonucleotide sequences corresponding to the target gene, e.g. the NFκB transcription factor, typically about 10 to 30 sequences may be found within the target gene or RNA which have a low content of thymidine (DNA) or uridine (RNA). In accordance with this invention, the selected fragment sequences may also contain a small number of thymidine (DNA) or uridine (RNA) nucleotides within the secondary or tertiary or quaternary sequences. In some cases, a large adenosine content may suffice to render the anti-sense oligonucleotide less active or even inactive against the target. In accordance with this invention, these so called "non-fully desA" sequences may preferably have a content of adenosine of less than about 15%, about 12%, about 10%, about 7%, about 5%, and about 2% adenosine. Most preferred is no adenosine content (0%). In some instances, however, a higher content of adenosine is acceptable and the oligonucleotides still fail to show detrimental "adenosine activity". A particular important embodiment is that where the adenosine nucleotide is "fixed" or replaced by a "universal or alternative" base that may base-pair with similar or equal affinity to two or more of the four nucleotides present in natural DNA: A, G, C, and T.

A universal or alternative base is defined in this patent as any compound, more commonly an adenosine analogue, which has substantial capacity to hybridize to thymidine or uridine, while at the same time having reduced, or substantially lacking, ability to bind adenosine receptors or other molecules through which adenosine may exert an undesirable side effect in the experimental animal or in a cell system. Alternatively, adenosine analogs which completely fail to activate, or have significantly reduce ability for activating, adenosine receptors, such as the adenosine A_1, A_{2b} and/or A_3 receptors, most preferably A_1 receptors, and those that may even act as agonists of the adenosine A_{2a}, receptor, may be used. One example of a universal base is 2'-deoxyribofuranosyl-(5-nitroindole), and an artisan will know how to select others. This "fixing" step generates further novel sequences, different from those anti-sense to the ones found in nature, that permits the anti-sense oligonucleotide to bind, preferably equally well, with the target RNA. Other examples of universal or alternative bases are 2'-deoxyribosyl-(5-nitroindole). Other examples of universal bases are 3 - nitropyrrole - 2' - deoxynucleoside, 5 - nitro-indole, 2' - deoxyribosyl - (5 - nitroindole), 2'-deoxyribofuranosyl - (5-nitroindole), 2' - deoxyinosine, 2' -deoxynebularine, 6H, 8H-3,4-dihydropyrimido [4, 5 - c] oxazine - 7 - one and 2 - amino - 6 -methoxy aminopurine. In addition to the above, Universal bases which may be substituted for any other base although with somewhat reduced hybridization potential, include 3 - nitropyrrole - 2' - deoxynucleoside 2' - deoxyribofuranosyl - (5 - nitroindole), 2' - deoxyinosine and 2' - deoxynebularine (Glen Research, Sterling, VA). More specific mismatch repairs may be made using "P" nucleotide, 6H, 8H - 3, 4 - dihydropyrimido [4,5 - c] [1, 2] oxazin - 7 - one, which base pairs with either guanosine (G) or adenosine (A) and "K" nucleotide, 2 - amino - 6 - methoxyaminopurine, which base pairs with either cytidine (C) or thymidine (T)-uridine (U), among others. Others that are known in the art or will become available are also suitable. See, for example, Loakes, D. and Brown, D. M., Nucl. Acids Res. 22:4039-4043 (1994); Ohtsuka, E. et al., J. Biol. Chem.260(5):2605-2608 (1985); Lin, P.K.T. and Brown, D. M., Nucleic Acids Res. 20(19):5149-5152 (1992; Nichols, R. et al., Nature 369(6480): 492-493 (1994); Rahmon , M. S. and Humayun, N. Z., Mutation Research 377 (2): 263-8 (1997); Amosova, O., et al., Nucleic Acids Res. 25 (10): 1930-1934 (1997); Loakes D. & Brown, D. M., Nucleic Acids Res. 22 (20): 4039-4043 (1994), the entire sections relating to universal bases and their preparation and use in nucleic acid binding being incorporated herein by reference. When non-fully desT sequences are found in the naturally occurring target, they typically are selected so that about 1 to 3 universal base substitutions will suffice to obtain a 100% "desA" anti-sense oligonucleotide. Thus, the present method provides either anti-sense oligonucleotides to different targets which are low in, or devoid of, A content, as well as anti-sense oligonucleotides where one or more adenosine nucleotides, e. g. about 1 to 3, or more, may be "fixed" by replacement with a "universal" or "replacement" base. Universal bases are known in the art and need not be listed herein. An artisan will know which bases may act as universal bases, and replace them for A. Table 2 below provides a selected number of targets to which the agents of the invention are effectively applied. Others, however, may also be targeted.

Table 2: Cancer Targets

Transforming Oncogenes	Therapy Targets
ras	thymidylate synthetase
src	thymidylate synthetase

myc	dihydrofolate reductase
bcl-2	thymidine kinase
	deoxycytidine kinase
	ribonucleotide reductase
Angiogenesis factors	Adhesion Molecules
Oncogenes	Folate Pathway Enzymes
DNA repair genes	(One Carbon Pool)
	Telomerase
	HMG CoA Reductase
	Farnesyl Transferase
	Glucose-6-Phosphate Transferase Akt2 (Bases 1-1715)
Akt3 (1-1547)	
Ampiregulin (1-1230))	
Ap-2 (1-1391)	
Ap-2 Beta	
Ap-2 Gamma	
Sphingomyelinase	
Beta-2-Adernergic Receptor	
Beta Catenin	
E2F-Related Transcription Factor	
HM bFGF	
B-cell translocation gene 1 (BTG1)	
cyclin-dependent kinase 2 (CDK2)	
cyclin-dependent kinase 2 (CDK2)	
cyclin-dependent kinase 3 (CDK3)	
cyclin-dependent kinase 4 (CDK4)	
cyclin-dependent kinase 5 (CDK5)	
c-ets-1 proto-oncogene	
checkpoint kinase Chk1 (CHK1)	
type IV collagenase	
hepatocyte growth factor receptor (c-met)	
MYB proto-oncogene protein (MYB)	

A group of preferred targets for the treatment of cancer are genes associated with any of different types of cancers, or those generally known to be associated with malignancies, whether they are regulatory or involved in the production of RNA and/or proteins. Examples are transforming oncogenes, including, but not limited to, ras, src, myc, and BCL-2, among others. Other targets are those to which present cancer chemotherapeutic agents are directed to, such as various enzymes, primarily, although not exclusively, thymidylate synthetase, dihydrofolate reductase, thymidine kinase, deoxycytidine kinase, ribonucleotide reductase, and the like. The present technology is particularly useful in the treatment of cancer ailments given that traditional cancer therapies are fraught with the unresolved problem of selectively killing cancer cells while preserving normal living cells from the devastating effects of treatments such as chemotherapy, radiotherapy, and the like. The present technology provides the ability of selectively attenuating or enhancing a desired pathway or target. This approach provides a significant advantage over standard treatments of cancer because it permits the selection of a pathway, including primary, secondary and possibly tertiary targets, which are not generally expressed simultaneously in normal cells. Thus, the present agent may be administered to a subject to cause a selective increase in toxicity within tumor cells that, for instance, express all three targets while normal cells that may expresses only one or two of the targets will be significantly less affected or even spared. A group of preferred targets for the treatment of cancers are genes associated with different types of cancers, or those generally known to be associated with malignancies, whether they are regulatory or involved in the production of RNA and/or proteins. Examples are transforming oncogenes, including, but not limited to, ras, src, myc, and BCL-2, among others. Other targets are those to which present cancer chemotherapeutic agents are directed to, such as various enzymes, primarily, although not exclusively, thymidylate synthetase, dihydrofolate

reductase, thymidine kinase, deoxycytidine kinase, ribonucleotide reductase, and the like.

In one embodiment, at least one of the genes or mRNAs to which the oligo of the invention is targeted encodes or is involved in the regulation of a protein such as transcription factors, stimulating and activating factors, intracellular and extracellular receptors and peptide transmitters in general, interleukins, interleukin receptors, chemokines, chemokine receptors, endogenously produced specific and non-specific enzymes, immunoglobulins, antibody receptors, central nervous system (CNS) and peripheral nervous and non-nervous system receptors, CNS and peripheral nervous and non-nervous system peptide transmitters, adhesion molecules, defensines, growth factors, vasoactive peptides and receptors, and binding proteins, among others; or the mRNA is corresponding to an oncogene and other genes associated with various diseases or conditions. Examples of target proteins are eotaxin, major basic protein, preproendothelin, eosinophil cationic protein, P-selectin, STAT 4, MIP-1α, MCP-2, MCP-3, MCP-4, STAT 6, c-mas, NF-IL-6, cyclophillins, PDG2, cyclosporin A-binding protein, FK5-binding protein, fibronectin, LFA-1 (CD11a/CD18), PECAM-1, C3bi, PSGL-1,CD-34, substance P, p150,95, Mac-1 (CD11b/CD18), VLA-4, CD-18/CD11a, CD11b/CD18, C5a, CCR1, CCR2, CCR4, CCR5, and LTB-4, among others. Others are, however, suitable, as well. In another embodiment, at least one of the mRNAs to which the oligo is targeted encodes intracellular and extracellular receptors and peptide transmitters such as sympathomimetic receptors, parasympathetic receptors, GABA receptors, adenosine receptors, bradykinin receptors, insulin receptors, glucagon receptors, prostaglandin receptors, thyroid receptors, androgen receptors, anabolic receptors, estrogen receptors, progesterone receptors, receptors associated with the coagulation cascade, adenohypophyseal receptors, adenohypophyseal peptide transmitters, and histamine receptors (HisR), among others. However others are also contemplated. The encoded sympathomimetic receptors and parasympathomimetic receptors include acetylcholinesterase receptors (AcChaseR) acetylcholine receptors (AcChR), atropine receptors, muscarinic receptors, epinephrine receptors (EpiR), dopamine receptors (DOPAR), and norepinephrine receptors (NEpiR), among others. Further examples of encoded receptors are adenosine A_1 receptor, adenosine A_{2b} receptor, adenosine A_3 receptor, endothelin receptor A, endothelin receptor B, IgE high affinity receptor, muscarinic acetylcholine receptors, substance P receptor, histamine receptor, CCR-1 CC chemokine receptor, CCR-2 CC chemokine receptor, CCR-3 CC chemokine receptor (Eotaxin Receptor), interleukin-1β receptor (IL-1βR), interleukin-1 receptor (IL-1R), interleukin-1β receptor (IL-1βR), interleukin-3 receptor (IL-3R), CCR-4 CC chemokine receptor, cysteinyl leukotriene receptors, prostanoid receptors, GATA-3 transcription factor receptor, interleukin-1 receptor (IL-1R), interleukin-4 receptor (IL-4R), interleukin-5 receptor (IL-5R), interleukin-8 receptor (IL-8R), interleukin-9 receptor (IL-9R), interleukin-11 receptor (IL-11R), sympathomimetic receptors, parasympathomimetic receptors, GABA receptors, adenosine receptors, bradykinin receptors, e.g. bradykinin B2 receptor, insulin receptors, glucagon receptors, prostaglandin receptors, thyroid receptors, androgen receptors, anabolic receptors, estrogen receptors, progesterone receptors, receptors associated with the coagulation cascade, adenohypophyseal receptors, and histamine receptors (HisR). Others are also contemplated even though not listed herein. The encoded enzymes for development of the oligos of the invention include synthetases, kinases, oxidases, phosphatases, reductases, polysaccharide, triglyceride, and protein hydrolases, esterases, elastases, and , polysaccharide, triglyceride, lipid, and protein synthases, among others. Examples of target enzymes are tryptase, inducible nitric oxide synthase, cyclooxygenase (Cox), MAP kinase, eosinophil peroxidase, β2-adrenergic receptor kinase, leukotriene c-4 synthase, 5-lipooxygenase, phosphodiesterase IV, metalloproteinase, tryptase, CSBP/p38 MAP kinase, neutrophil elastase, phospholipase A_2, cyclooxygenase 2 (Cox-2), fucosyl transferase, chymase, protein kinase C, thymidylate synthetase, dihydrofolate reductase, thymidine kinase, deoxycytidine kinase, and ribonucleotide reductase, among others. Any enzyme associated with a disease or condition, however, is suitable as a target for this invention. Suitable encoded factors for application of this invention are, among others, NfκB transcription factor, granulocyte macrophage colony stimulating factor (GM-CSF), AP-1 transcription factor, GATA-3 transcription factor, monocyte activating factor, neutrophil chemotactic factor, granulocyte/macrophage colony-stimulating-factor (G-CSF), NFAT transcription factors, platelet activating factor, tumor necrosis factor α (TNF α), and basic fibroblast growth factor (BFGF). Additional factors are also within the invention even though not specifically mentioned. Suitable adhesion molecules for use with this invention include intracellular adhesion molecules 1 (ICAM-1), 2 (ICAM-2) and 3 (ICAM-3), vascular cellular adhesion molecule (VCAM), endothelial leukocyte adhesion molecule-1 (ELAM-1), neutrophil adherence receptor, mad CAM-1, and the like. Other known and unknown factors (at this time) may also be targeted herein. Among the cytokines, lymphokines and chemokines preferred are interleukin-1 (IL-1), interleukin-1β (IL-1β), interleukin-3 (IL-3), interleukin-4 (IL-4), interleukin-5 (IL-5), interleukin-8 (IL-8),

interleukin-9 (IL-9), interleukin-11 (IL-11), CCR-5 CC chemokine, and Rantes. Other examples include H2A histone family, member N, Tubulin, beta polypeptide, ELL gene (11-19 lysine-rich leukemia gene) 7-dehydrocholesterol reductase, ADP-ribosylation factor-like 7, Karyopherin alpha 2 (RAG cohort 1, importin alpha 1), EST (AI038433), EST (AI122689), EST (AI092623), ESTs (AI095492), ESTs (AI138216), ESTs (AI128305), ESTs (AI125228), ESTs (AI041482), ESTs (AI051839), Homo sapiens mRNA; cDNA DKFZp434A1716, ESTs (AI096522), ESTs (AI122807), ESTs (AI041212), EST (AI125651), Enolase 1, (alpha), EST (AI024215), EST (AI034360), Homo sapiens mRNA; cDNA DKFZp564H0764, Homo sapiens mRNA for KIAA1363 protein, partial cds, Potassium voltage-gated channel, shaker-related subfamily, beta member 2, ER-associated DNAJ; ER-associated Hsp40 co-chaperone; hDj9; ERj3, ESTs, Weakly similar to p38 protein [H.sapiens] (AA906703), CGI-142, ESTs (AA463249), Homo sapiens clone 25058 mRNA sequence ESTs (R49144), Squamous cell carcinoma antigen 1, ESTs (AA425700), Myosin X, ESTs (AA459692), Epithelial protein lost in neoplasm beta, CD44 antigen (homing function and Indian blood group system), Coagulation factor III (thromboplastin, tissue factor), ESTs (AA909635), Adducin 1 (alpha), 5' Nucleotidase (CD73), ESTs, Moderately similar to semaphorin C [M.musculus] (AA293300), ESTs (AA278764), ESTs (AA678160), Calmodulin 2 (phosphorylase kinase, delta), ESTs (R42770), Chloride intracellular channel 1, High-mobility group (nonhistone chromosomal) protein 17, Ubiquitin carrier protein, Tubulin, alpha 1 (testis specific), Transglutaminase 2 (C polypeptide, protein-glutamine-gamma-glutamyltransferase), Sparc/osteonectin, cwcv and kazal-like domains proteoglycan (testican), Proteasome (prosome, macropain) 26S subunit, non-ATPase, 2, Tubulin, beta polypeptide, Filamin B, beta (actin-binding protein-278), Stanniocalcin, Low density lipoprotein receptor (familial hypercholesterolemia), Plectin 1, intermediate filament binding protein, 500kD, S100 calcium-binding protein A2, Immediate early response 3, Calpain, large polypeptide L2, Pleckstrin homology-like domain, family A, member 1, Melanoma adhesion molecule, CD44 antigen (homing function and Indian blood group system), Programmed cell death 5, Hexokinase 1, Vascular endothelial growth factor, Integrin, alpha 2 (CD49B, alpha 2 subunit of VLA-2 receptor), Calumenin, Syntaxin 11, Diphtheria toxin receptor (heparin-binding epidermal growth factor-like growth factor), Fn14 for type I transmenmbrane protein, Nef-associated factor 1, High-mobility group (nonhistone chromosomal) protein isoforms I and Y, Catechol-O-methyltransferase, C-terminal binding protein 1, Collagen, type XVII, alpha 1, ESTs (N58473), Farnesyl-diphosphate farnesyltransferase 1 RNA helicase-related protein, Interferon stimulated gene (20kD), Steroid-5-alpha-reductase, alpha polypeptide 1 (3-oxo-5 alpha-steroid delta 4-dehydrogenase alpha 1), Prostaglandin-endoperoxide synthase 2 (prostaglandin G/H synthase and cyclooxygenase), Laminin, alpha 3 (nicein (150kD), kalinin (165kD), BM600 (150kD), epilegrin), Collagen, type XVII, alpha 1, Keratin 18, Heparan sulfate (glucosamine) 3-O-sulfotransferase 1, Tubulin, alpha 2, Adenylyl cyclase-associated protein, Forkhead box D1, Cathepsin C, ESTs, Highly similar to AF151802_1 CGI-44 protein [H.sapiens] (T74688), Ribonucleotide reductase M2 polypeptide, Laminin, gamma 2 (nicein (100kD), kalinin (105kD), BM600 (100kD), Herlitz junctional epidermolysis bullosa)), Homo sapiens mRNA; cDNA DKFZp586P1622 (from clone DKFZp586P1622), ESTs, Weakly similar to /prediction (AA284245), and Lactate dehydrogenase A. Others, however, may also be targeted, as they are known to be involved in specific diseases or conditions to be treated, or for their generic activities, such as inflammation. Examples of defensins for the practice of this invention are defensin 1, defensin 2, and defensin 3, and of selectins are $\alpha4\beta1$ selectin, $\alpha4\beta7$ selectin, LFA-1 selectin, E-selectin, P-selectin, and L-selectin. Examples of oncogenes, although not an all inclusive list, are ras, src, myc, and bcBCL. Others, however, are also suitable for use with this invention.

The agents administered in accordance with this invention are preferably designed to be anti-sense to one or more target genes and/or mRNAs usually related in origin to the species to which it is to be administered, although they may be directed, to foreign sequences, e.g. of viruses. When treating humans, the agents are preferably designed to be anti-sense to a human gene or RNA. The agents of the invention encompass oligonucleotides which are anti-sense to naturally occurring DNA and/or RNA sequences, fragments thereof of up to a length of one (1) base less than the targeted sequence, preferably at least about 7 nucleotides long, oligos having only over about 0.02%, more preferably over about 0.1%, still more preferably over about 1%, and even more preferably over about 4% adenosine nucleotides, and up to about 30%, more preferably up to about 15%, still more preferably up to about 10% and even more preferably up to about 5%, adenosine nucleotide, or lacking adenosine altogether, and oligos in which one or more of the adenosine nucleotides have been replaced with so-called universal bases, which may pair up with thymidine or uridine nucleotides but fail to substantially trigger adenosine receptor activity. Examples of human sequences and fragments, which are not limiting, of anti-sense oligonucleotide of the

invention are the following fragments as well as shorter segments of the fragments and of the full gene or mRNA coding sequences, exons and intron-exon junctions encompassing preferably 7, 10, 15, 18 to 21, 24, 27, 30, n-1 nucleotides for each sequence, where n is the sequence's total number of nucleotides. These fragments may be selected from any portion of the longer oligo, for example, from the middle, 5'- end, 3'- end or starting at any other site of the original sequence. Of particular importance are fragments of low adenosine nucleotide content, that is, those fragments containing less than or about 30%, preferably less than or about 15%, more preferably less than or about 10%, and even more preferably less than or about 5%, and most preferably those devoid of adenosine nucleotide, either by choice or by replacement with a universal base in accordance with this invention. The agent of the invention includes as a most preferred group sequences and their fragments where one or more adenosines present in the sequence have been replaced by a universal base (B), as exemplified here. Similarly, also encompassed are all shorter fragments of the B-containing fragments designed by substitution of B(s) for adenosine(s) (A(s)) contained in the sequences, fragments thereof or segments thereof, as described above. A limited list of sequences and fragments is provided below.

Some of the examples of anti-sense oligonucleotide sequence fragments target the initiation codon of the respective gene, and in some cases adenosine is substituted with a universal or alternative base adenosine analogue denoted as "B", which lacks ability to bind to the adenosine A_1 and/or A_3 receptors. In fact, such replacement nucleotide acts as a "spacer". Many of the examples shown below provide one such sequence and many fragments overlapping the initiation codon, preferably wherein the number of nucleotides n is about 7, about 10, about 12, about 15, about 18, about 21 and up to about 28, about 35, about 40, about 50, about 60.

<u>Human Receptor-related Antisense Polynucleotide</u>

Human Receptor-related Antisense Polynucleotide

5'-GGCGGCCTGG AAAGCTGAGA TGGAGGGCGG CATGGCGGGC ACAGGCTGGG C TGCTTTTCT TTTCTGGGCC TCTGTGGTCT
GTTTTTTTCT GGCCCTGCTG GGGCGCTCTC CGCCGCCCGC CTGGCTCCCG GBGCCCBTGB TGGGCBTGCC GTGGTTCTTG
CCCTCCTTTG GCTGCCGTGC CCGCTCCCCG GCCTCCTGGC GGGTGGCCGT TGGGCCCGTG TTCCCCTGGG GCCTGGGGCT
CCCTTCTCTC GCCCTTCTTG CTGGGCCTCT GCTGCTGCTG GTGCTGTGGC CCCCGTACA CCGAGGAGCC CATGATGGGC
ATGCCACAGA CGACAGGCGT BCBCCGBGGB GCCCBTGBTG GGCBTGCCBC BGBCGBCBGG C GGC GCC GTG CCG CGT CTT
GGT GGC GGC GG GTT CGC GCC CGC GCG GGG CCC CTC CGG TCC GTT CGC GCC CGC GCG GGG CCC CTC CGG TCC CGG GTC
GGG GCC CCC CGC GGC C GCC TCG GGG CTG GGG CGC TGG TGG CCG GG CCG CGC CTC CGC CTG CCG CTT CTG GCT GGG
CCC CGG GCG CCC CCT CCC CTC TTG CTC GGG TCC CCG TG ACA GCG CGT CCT GTG TCT CCA GCA GCA TGG CCG GGC CAG
CTG GGC CCC BCB GCG CGT CCT GTG TCT CCB GCB GCB TGG CCG GGC CBG CTG GGC CCC ACA GAG CAG TGC TGT TGT
TGG GCA TCT TGC CTT CCC AGG G BCB GBG CB TGC TGT TGT TGG GCB TCT TGC CTT CCC BGG GCC CTT TTC TGG TGG GGT
GGT GCT GTT GTT GGG CTT TCT TCT GTT CCC BCB GBG CBG TGC TGT TGT TGG GCB TCT TGC CTT CCC BGG GCC CTT TTC
TGG TGG GGT GGT GCT GTT GTT GGG C TTT CTT CTG TTC CC TTT CCC CTG GGT CTT CC CTC CTG CTC TTT TTT C ATT TGC
TCT CCT ATT ACT TTC TGT GTC CAT TTT TTC ATT AAC CGA GCT GT BTT TGC TCT CCT BTT BCT TTC TGT GTC CBT TTT TTC
BTT BBC CGB GCT GT GCC TGT GTC TGT CCT CCT GCT TCG TTC CTC TCG TTC CTG CTT GGT GCC CTT GCC G GTC CTG CTC
CTC CGG GCT GTG G GTC GTG GCC CTG GCT CCG GCT GGT GGG CTC CCC TGG CCT TCG CTG GCT GGC GGC GTG C GGG
TCT TGC TCT GGG CCT GGC TGT GGC CGT GGT TGG GGG TCT TC GCT GCC TCC GTT TGG GTG GC TCT CTG AAT ATT GAC
CTT CCT CCA TGG CGG TCC TGC TTG GAT TCT CCC GA TCT CTG BBT BTT GBC CTT CCT CCB TGG CGG TCC TGC TTG GBT
TCT CCC GB GCC TTT CCT GGT TCT CTT GTT GTT TTT GGG GTT TGG CTT ACA GTA GAG TAG GGG ATT CCA TGG CAG GAG
CCA TCT TCT TCA TGG ACT CC TTC AAG GAG ACC TTA GGT TTC TGA GGG ACT GCT AAC ACG CCA TCT GGA GC BCB GTB
GBG TBG GGG BTT CCB TGG CBG GBG CCB TCT TCT TCB TGG BCT CC TTC BBG GBG BCC TTB GGT TTC TGB GGG . BCT GCT
BBC BCG CCB TCT GGB GC GTT GTT TTT GGG GTT TGG CTT GCC TTT CCT GGT TCT CTT BCB GTB GBG TBG GGG BTT CCB
TGG CBG GBG CCB TCT TCT TCB TGG BCT CC TTC BBG GBG BCC TTB GGT TTC TGB GGG BCT GCT BBC BCG CCB TCT GGB
GC GCC TGT GTC TGT CCT CCT GCT TCG TTC CTC TCG TTC CTG CTT GGT GCC CTT GCC G GTC CTG CTC CTC CGG GCT GTG
G GTC CTC GCC CTG GCT CCG GCT GGT GGG CTC CCC TGG CCT TCG CTG GCT GGC GGC GTG C CCC BGB BCG BGB CCC GGB
CCG BCB GGC CGT GGT TGG GGG TCT TC GCT GCC TCC GTT TGG GTG GC GAT CTC TGA ATA TTGA CCT TCC ATG GCG GTC
CTG CTT GGA GBT CTC TGB BTB TTGB CCT TCC BTG GCG GTC CTG CTT GGB TCT GGG GTG TCC TGG CCT TCG TGG TTC CTC
TTC CTT CGT TTG CCG TCC GCG GGG GCC CCC GGG CCT GGC TGC GCT CCT GCC CCG CCT CTT TCC CGG GCT CTT GCG CTG
GGG GGT GCT CC CGT GTG TTT GCG CCC TC CTC CTG GTC GCG CTT GTC GTT TTG GGG CCG GCT TTG CCC GCC TCC CGG
CGC CTG GCC CGG CC TTC CTG GGC TGC GTG CGC GTT CTG TTC TTC TTC CTG GCT CTG GGG TGT CCT GGC CTT CGT GGT
TCC TCT TCC TTC GTT TGC CGT CCG CGG GGG CCC CCG GGC CT GGC TGC GCT CCT GCC CCG CCT CTT TCC CGG GCT CTT
GCG CTG GGG GGT GCT CCC GTG TGT TTG CGC CCT CCT CCT GGT CGC GCT TGT CGT TTT GG GGC CGG CTT TGC CCG CCT
CCC GGC GCC TGG CCC GGC CTT CCT GGG CTG CGT GCG CGT TCT GTT CTT CTT CCT GGC GCA GGA GAC AGG GCA GGG
CGA TCA GGA GCA GCG TGA GCC AAA GGA GGA CCA TCG GGA ACG CAG CTC CGG AAC GCA GGA CAG AGG TGC C GC BGG
BGB CBG GGC BGG GCG BTC BGG BGC BGC GTG BGC CBB BGG BGG BCC BTC GGG BBC GCB GCT CCG GBB CGC BGG BCB
GBG GTG CC TCT GCC CTG TCC GCC GGC TCT TCG GTG GCT CGG CCC CGC TCC TTG TCT TGC CGC GGG TTG GTT CCT GGG
CCT GGT TCT TGC GGG CGT TTC GGT CTG CTG GCT GGT CTG GGC CCG CGG TGC GGC GGG TGG CTT GCT GTT CTG CCT GGG
CTC TCC CCT CTC CTC CTT TTC TCC CTT CCT CTG TCT TGC CTC CTT CCT CTG GGT CCT CTT GGC CTG GGC GCT CTT CCC
CTC GGG CGG CTG CGG GCG CTC GTG CTG CCT GGT CCG CTC CCT GGG GGT GCT CCT TCC CTT TCC CCG CTC GTG GGG TTT
GCG GGG CTG GGC TGC CCT GGG GGG TCT GGG CCT TTT GGG GTC GGC TGG CTG CTG CTT CGG GCC GCC TGG GCT TCC
CTG TGC CCC TTT CCT CTG CTG GGT CCC CCT CCC GTT CCA AGC TGC ACC GCA CAG ACC GGC GCT ACA GGA CAG AGC
CAG GCA AGC ACC CAT GGG GAT CCA GGC CCA GCT GTT CCB BGC TGC BCC GCB CBG BCC GGC GCT BCB GGB CBG BGC
CBG GCB BGC BCC CBT GGG GBT CCB GGC CCB GCT G CTCAGTGGCC CCCAAAAGGA TGAGTAATAC ATGCGCCACG
ATGATCATAT CCTTTTTACT ATGAGGCCGT GTCTGTCGTG TCTTTCCTTT GCTCTTGGTG TGTCTTTGCT GTGCCCTGCC
TCTCTGCCCG TGTCTGTCGT GTCTTTCCTT TGCTCTTGGT GTGTCTTTGC TGTGCCCTGC CTCTCTGCCC CGTGTCTGTC

GTGTCTTTCC TTTGCTCTTG GTGTGTCTTT GCTGTGCCCT GCCTCTCTGC GGGGGTGGCT TCCTGCCGCG TCTCTGGGCC
GTCCCGTCCC TCGGCCCCGC GCCGCGCTCG GCTCCTCTCC CTCTGGCCCG GCTCGGGGCG GGGCGGGGCG GTGGGCGGGC
GGCGCTGCCC TGCGCGCGGC GCTGGCCCCT GCTGGCCGTC GGCTGCGCGC TGCTGGCTGC CCTGCTGGCC GCGCCGGGGC
CTGTCCGCCT CTGCGGGCGC TGTCTCCTGG CTTGTCTTCC GGCTCTTCTG CTGGGGTGGG GCTGGGCGGC CGGCCCGGTG
CTGGGGCTCC TCGGGGGGGG GGGCTCTTCC GGGCTGTCTC CCTCCGGGGC GGGGGTTTCT GGCCGTGGGG GTCTTGCCTG
GCCTCCGGGC TCCTGCTTGT CTTGCCTTCC TTCTCTGGTC GGTTGTGGCT CGGGGCTCCG TGGGTCCCTG GCGCCCGTTT
GTGTTTTGTC TTTTCCCCTG GCGTCCCTGT GCCCCTCTCC TCTCCTTCCT CTGCTTCTCG CTCTCCTTTG TGGGGCCCTC
CCTGCTGCTC TTGGTTTTGG GCTTTTTTTC TCTTCCTCCT TTTTCGTGCG TGGGCCTCC GCACGCCTCT TGCCACCTCC
TGCGCAGGGC AGCGCCTTGG GGCCAGCGCC GCTCCCGGCG CGGCCAGCAG GGCAGCCAGC AGCGCGCAGC CGACGGCCAG
CATGCTTCCT CCTCGGCTAC CACTCCATGG TCCCGCAGAG GCGGACAGGC GCBCGCCTC TTGCCBCCTC CTGCGCBGGG
CBGCGCCTTG GGGCCBGCGC CGCTCCCGGC GCGGCCBGCB GGGCBGCCBG CBGCGCGCBG CCGBCGGCCB GCBTGCTTCC
TCCTCGGCTB CCBCTCCBTG GTCCCGCBGB GGCGGBCBGG C GCTGCCCGGC GGGGTGTGCG CTTGGCGCTC CCGTGCTCGG
TTCTCTGTCT CCCGGTCCCC CTTGCCTGGC GTCTCGGGCC TTCGTCCTCT TCCTCTTCTT CCTTCCGCTC CGTGGGGGCT
GCTTGGTGGG GGCCTGTGCCT CGGGGTCCCG GGGCTTCTGG CCCTTGCCGT TCATGGTGGC TAGGTGGGGC GTTCBTGGTG
GCTBGGTGGG GC GGG GTG GGT BGG CCG TGT CTG GGGGTT GGC CBT GTT GGT TGC CTCT TGG TGG TGC GCC GGG CGCG
TCT TGG CTT TCT TCT CCT TCG GGC CCT CGG GCC GGT GCT TGT GGGCT CCT CCC GGG CGG CCT CCC CGG GCG GGG GCT
TCT TGGCG CTG GCG GGG GGG CCT CCTGCT CTG TGG CTG GGC GTT CCT TGG TGT TCT GGG TGGTGG CGG GCG TGG TGG
CCT CTG TGGGGG CCC GCG GCT GCB GGG GTTG CCT GTC TGC TTC GTCCTT TGC GCT CCC GGG CCG CCGGG GTG GGT AGG
CCG TGT CTG GGGGTT GGC CAT GTT GGT TGC CGGG CCC GCG GCT GCA GGG G ACAGGGGCTG TAATCTTCATC
TGCAGGTGGC ATGCCAGTGA AATTTAGATC ATCAAAATCC CACATCTGTG GATCTGTAAT ATTTGACATG TCCTCTTCAG
TTTCAGCAAT GGTTTGATCT AACTGAAGCA CCGGCCAGGB CBGGGGCTGT BBTCTTCBTC TGCBGGTGGC BTGCCBGTGB
BBTTTBGBTC BTCBBBBTCC CBCBTCTGTG GBTCTGTBBT BTTTGBCBTG TCCTCTTCBG TTTCBGCBB TGGTTTGBTC
TBBCTGBBGC BCCGGCCBGG TGGCTCGGTG CTTCTGCCCC TGTTGTTGCG GCGCTCGGTT GGTGTGGCCC CTGTGGTGCT
TCGTTTCCCC CTCTTTCTCT TTGTTCGGGG GTTCTTGTGG CGGGCTGCTT GTCTCGTTCC GCCCTGTCGG GCGGGAAGCC
TCTCTCCTCT CCCCAGATC CGCGACAGGC CGCAGGCAAG AACCAGCGCA ACCAGGGCGC GTCCGCACAG ACTTGGAGGC
GGCTGCATGC TGCTACCTGC TCCAGAAGCG TCCGGTGGCC GCCGCGCC CTGTCGGGCG GGBBGCCTCT CTCCTCTCCC
CBGBTCCGCG BCBGGCCGCB GGCBBGBBCC BGCGCBBCCB GGGCGCGTCC GCBCBGBCTT GGBGGCGGCT GCBTGCTGCT
BCCTGCTCGGGCG GGBBGCCTCCG GTGGCCGCCG CGCGTCCGGT GGCCGCCGCG CCTCTCTCCT CTCCCCGTGG CCCTGTCGGG
CGGGTCCTGC CGTCCTGTCT CCTTTTCTTT TGCTGTCTTG TCTTCCCGTC TCTGCTTT GTCTGTCCTC CCCGTCTCCT
CCCACTGCTT CTCCCGGGGG CTTCCCCGGC TTCGGGTGGC CGGTGTCCCG GGCTCCGGCG CGGCGGCGGC TTCGGCTGCG
GGTGGGTGGC GCGGGCTGCC GGGTCCGCGC GGCGCCTGGG CCCTTGTGCT GCTTTTTGCT TGTTCCGTTC TGGCTGCTCC
GGTCTGTGTT GTGGTTGTTT TGTTTCTTCT TGGGTGTGGG CCTTGCGGTT TTGGCTGTGG GCCCTTTGGG GCCTTGGCTT
CTGGCTCGTC TGTCCTCCCC GTCTCCTCCC ACTGCTTCT CCCGGGGGCT TCCCCGGCTT CGGGTGGCCG GTGTCCCGGG
CTCCGGCGCG GCGGCGGCTT CGGCTGCGGG TGGGTGGCGC GGGCTGCCGG GTCCGCGCGG CGCCTGGGCC CTTGTGCTGC
TTTTTGCTTG TTCCGTTCTG GCTGCTCCGG TCTGTGTTGT GGTTGTTTTG TTTCTTCTTG GGTGTGGGCC TTGCGGTTTT
GGCTGTGGGC CCTTTGGGGC CTTGGCTTCT GGCTCCAT CCACATGATT GCTTAGATTT GTGCTGTATC TCTCAGGATT
ATCACTGATT ACACATCCAA CCAGTGCCAG CCAAAAGGAT GCCCTGAGGC AAAGGGTTTC CATCTTGAGG CAAATTTGAG
GACBTCCBC BTGBTTGCTT BGBTTTGTGC TGTBTCTCTC BGGBTTBTCB CTGBTTBCBC BTCCBBCCBG TGCCBGCCBB
BBGGBTGCCC TGBGGCBBBG GGTTTCCBTC TTGBGGCBBB TTTGBGGBGGGCTBBGBT GBTCCBCBTC BCTBCCBCGT
TGCCCBCCBC BGBGGTCBCC BCBBTGBCCG TGTBGGCBGC TGCCCBBBGG BCBBTTTGCC BGGCTGGTTG CBCGBBCTGB
TTGGGTTCCG BGGTGTTBGT GGBGBTGTTT GGGGBGBGGT CTGBGTCCBC CGGGBGGBCG TTBTCCBTTT CGBBGCTBGG
CGGTBBBGCC CTBCTBTCTG TBCBCBBCCC CCCTCTGCBG CBGBGTCCTG TCGTGGCGCC TGGGGCTCBG GGTCCGGGC
TAAGATGATC CACATCACTA CCACGTTGCC CACCACAGAG GTCACCACAA TGACCGTGTA GGCAGCTGCC CAAAGGACAA
TTTGCCAGGC TGGTTGCACG AACTGATTGG GTTCCGAGGT GTTAGTGGAG ATGTTTGGGG AGAGGTCTGA GTCCACCGGG
AGGACGTTAT CCATTTCGAA GCTAGGCGGT AAAGCCCTAC TATCTGTACA CAACCCCCCT CTGCAGCAGA GTCCTGTCGT
GGCGCCTGGG GCTCAGGGTC CGTCCTGTCG TGGCGCCTGG GGCTCTTCTT TTGTGGGCTC TTTGGTGGCT GTGGCTGTGG
TCTCTGTGGT TGCTGCCCTG GGTCTGGGGG TGTGGCCTTG GGGCCGTCCT CTGGCTCCTC CTCGTGGGCC CCC GGTGBCBTTG
BGCBTGTCGG CGCGGTCCCG TTBBGBGTGG GCCCGCCAGC CCAGCCACTC CACTTGGGGG CGGGTGGCCA GCACGAACAG
CACCCAGAGG AAGGGGGGCG GCCCAGAAGG GCAGCCCGCA GGCCAGGATC AGGTCTGCTG CGGCCGGAGA TAATGGCATT
CACCACGCGG CGGCCCAGCG CACGCCGCGC ATCCGGCCCG GGTTCTGACC TGCAGCCCCC GTCTCCTTGG CATTCCTGGG
CCCCAGTCAC TCCTCTCCCT GCCCCCCTTG CTGGGGCAGG GACGGGGTG BCBTTGBGCB TGTCGGCGCG GTCCCGTTBB
GBGTGGGCCC GCCAGCCCAG CCACTCCACT TGGGGGCGGG TGGCCAGCAC GAACAGCACC CAGAGGAAGG GGGGCGGCCC
AGAAGGGCAG CCCGCAGGCC AGGATCAGGT CTGCTGCGGC CGGAGATAAT GGCATTCACC ACGCGGCGGC CCAGCGCACG
CCGCGCATCC GGCCCGGGTT CTGACCTGCA GCCCCCGTCT CCTTGGCATT CCTGGGCCCC AGTCACTCCT CTCCCTGCCC
CCCTTGCTGG GGCAGGGACG GCCGTGTTGT CBGTGGTGCT GCCCGTTTGB GGTBTGGCGC TCCBCCBBTT CCCTTTTCTC
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GCTCATCGCC CTGGTCTCTG TGCCCGGGAA CGTGCTGGTG ATCTGGGCGG TGAAGGTGAA CCAGGCGCTG CGGGATGCCA
CCTTCTGCTT CATCGTCTCG CTGGCGGTGG CTGATGTGGC CGTGGGTGCC CTGGTCATCC CCCTCGCCAT CCTCATCAAC
ATTGGGCCAC AGACCTACTT CCACACCTGC CTCATGGTTG CCTGTCCGGT CCTCATCCTC ACCCAGAGCT CCATCCTGGC
CCTGCTGGCA ATTGCTGTGG ACCGCTACCT CCGGGTCAAG ATCCCTCTCC GGTACAAGAT GGTGGTGACC CCCCGGAGGG
CGGCGGTGGC CATAGCCGGC TGCTGGATCC TCTCCTTCGT GGTGGGACTG CCCCTATGT TTGGCTGGAA CAATCTGAGT
GCGGTGGAGC GGGCCTGGGC AGCCAACGGC AGCATGGGGG AGCCCGTGAT CAAGTGCGAG TTCGAGAAGG TCATCAGCAT
GGAGTACATG GTCTACTTCA ACTTCTTTGT GTGGGTGCTG CCCCCGCTTC TCCTCATGGT CCTCATCTAC CTGGAGGTCT
TCTACCTAAT CCGCAAGCAG CTCAACAAGA AGGTGTCGGC CTCCTCCGGC GACCCGCAGA AGTACTATGG GAAGGAGCTG
AAGATCGCCA AGTCGCTGGC CCTCATCCTC TTCCTCTTTG CCCTCAGCTG GCTGCCTTTG CACATCCTCA ACTGCATCAC
CCTCTTCTGC CCGTCCTGCC ACAAGCCCAG CATCCTTACC TACATTGCCA TCTTCCTCAC GCACGGCAAC TCGGCCATGA
ACCCCATTGT CTATGCCTTC CGCATCCAGA AGTTCCGCGT CACCTTCCTT AAGATTTGGA ATGACCATTT CCGCTGCCAG
CCTGCACCTC CCATTGACGA GGATCTCCCA GAAGAGAGGC CTGATGACTA G ATGAGTGTCA GAAGTGTGAA GGGTGCCTGT
TCTGAATCCC AGAGCCTCCT CTCCCTCTGT GAGGCTGGCA GGTGAGGAAG GGTTTAACCT CACTGGAAGG AATCCCTGGA
GCTAGCGGCT GCTGAAGGCG TCGAGGTGTG GGGGCACTTG GACAGAACAG TCAGGCAGCC GGGAGCTCTG CCAGCTTTGG
TGACCTTGGG CCGGGCTGGG AGCGCTGCGG CGGGAGCCGG AGGACTATGA GCTGCCGCGC GTTGTCCAGA GCCCAGCCCA
GCCCTACGCG CGCGGCCCGG AGCTCTGTTC CCTGGAACTT TGGGCACTGC CTCTGGGACC CCTGCCGGCC AGCAGGCAGG
ATGGTGCTTG CCTCGTGCCC CTTGGTGCCC GTCTGCTGAT GTGCCCAGCC TGTGCCCGCC ATGCCGCCCT CCATCTCAGC
TTTCCAGGCC GCCTACATCG GCATCGAGGT GCTCATCGCC CTGGTCTCTG TGCCCGGGAA CGTGCTGGTG ATCTGGGCGG
TGAAGGTGAA CCAGGCGCTG CGGGATGCCA CCTTCTGCTT CATCGTGTCG CTGGCGGTGG CTGATGTGGC CGTGGGTGCC

CTGGTCATCC CCCTCGCCAT CCTCATCAAC ATTGGGCCAC AGACCTACTT CCACACCTGC CTCATGGTTG CCTGTCCGGT
CCTCATCCTC ACCCAGAGCT CCATCCTGGC CCTGCTGGCA ATTGCTGTGG ACCGCTACCT CCGGGTCAAG ATCCCTCTCC
GGTACAAGAT GGTGGTGACC CCCCGGAGGG CGGCGGTGGC CATAGCCGGC TGCTGGATCC TCTCCTTCGT GGTGGGACTG
ACCCCTATGT TTGGCTGGAA CAATCTGAGT GCGGTGGAGC GGGCCTGGGC AGCCAACGGC AGCATGGGGG AGCCCGTGAT
CAAGTGCGAG TTCGAGAAGG TCATCAGCAT GGAGTACATG GTCTACTTCA ACTTCTTTGT GTGGGTGCTG CCCCCGCTTC
TCCTCATGGT CCTCATCTAC CTGGAGGTCT TCTACCTAAT CCGCAAGCAG CTCAACAAGA AGGTGTCGGC CTCCTCCGGC
GACCCGCAGA AGTACTATGG GAAGGAGCTG AAGATCGCCA AGTCGCTGGC CCTCATCCTC TTCCTCTTTG CCCTCAGCTG
GCTGCCTTTG CACATCCTCA ACTGCATCAC CCTCTTCTGC CCGTCCTGCC ACAAGCCCAG CATCCTTACC TACATTGCCA
TCTTCCTCAC GCACGGCAAC TCGGCCATGA ACCCCATTGT CTATGCCTTC CGCATCCAGA AGTTCCGCGT CACCTTCCTT
AAGATTTGGA ATGACCATTT CCGCTGCCAG CCTGCACCTC CCATTGACGA GGATCTCCCA GAAGAGAGGC CTGATGACTA
GACCCCGCCT TCCGCTCCCA CCAGCCCACA TCCAGTGGGG TCTCAGTCCA GTCCTCACAT GCCCGCTGTC CCAGGGGTCT
CCCTGAGCCT GCCCCAGCTG GGCTGTTGGC TGGGGGCATG GGGGAGGCTC TGAAGAGATA CCCACAGAGT GTGGTCCCTC
CACTAGGAGT TAACTACCCT ACACCTCTGG GCCCTGCAGG AGGCCTGGGA GGGCAAGGGT CCTACGGAGG GACCAGGTGT
CTAGAGGCAA CAGTGTTCTG AGCCCCCACC TGCCTGACCA TCCCATGAGC AGTCCAGCGC TTCAGGGCTG GGCAGGTCCT
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__Human Enzyme-related Antisense Polynucleotide__

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Human Factor Related Anti-sense Oligonucleotide

5'-CCT CCT TCC TGG TCT GTC TGC CBG BCB BBT TTG GGB BGT GBB CBG TTT TGG BBC CBT GTT TCC CBG TCT CTG BGC TGT GGC GCC CTG CTG CTC TTT CTG CT TCC CTT GGT GGG TTG GGC C GCT GGT TGT TCT GGG GTT C TTG CTG CCC CTT CTG TCC C TGT TTG CTG GTG TCT GCG C CCC CBB CBG BBG BBG CBG BCB BBT TTG GGB BGT GBB CBG TTT TGG BBC CBT GTT TCC TGT GCG CTC GGC CTG GTC CCG G GGG TCT CCT CTT GTT GTT GC TTG CGC CTC CTG CTG GGG GT CC CTC TGT TCT TGT TTT GGG GGC GGG CCC GGC CGT TGT CTT G GTT TGG GGG TTT CCG TTG GGG TTC TCC TGG CCC GGG CCT TGC CC GGC CGT GGT CCC GGC TTC GTTCCT GTC TCC GTC TCG GCT CTT CTG GGG CCT TGC GCT GTC TTT GGT G GCB CCG TCC BGT GBT GGT GCG GTB CTT GTC GCT GCB GCG CTC GGC CTG GTC CCG GBG BGC GCG CGG GCC GGG GGC TGC TGG G GGT TGG CCC GGG GTG CCC C GCC GCT GGG TGC CCT CGT CCT CTG CGG TC GTG TCT CCT GGC TCT GGT TCC CC GCT GCG CCC GTT GTC CTC TGG GGT GGC CTT C GCT CCC GGG TCT GGT TCT TGT GT TGG GGG TCC CTT TTT GGG CCT GTT GT GGC GTG GCT TGT GTG TTC GGT TTC TGC CCT GTC CTC CGG CGT CCC CGG BGC CTC CCC GGG 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Human Adenosine A1 Receptor Nucleic Acid and Antisense Oligonucleotide Fragments

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GCCTTTGCAC ATCCTCAACT GCATCACCCT CTTCTGCCCG TCCTGCCACA AGCCCAGCAT CCTTACCTAC ATTGCCATCT
TCCTCACGCA CGGCAACTCG GCCATGAACC CCATTGTCTA TGCCTTCCGC ATCCAGAAGT TCCGCGTCAC CTTCCTTAAG
ATTTGGAATG ACCATTTCCG CTGCCAGCCT GCACCTCCCA TTGACGAGGA TCTCCCAGAA GAGAGGCCTG ATGACTAGAC
CCCGCCTTCC GCTCCCACCG CCCACATCCA GTGGGGTCTC AGTCCAGTCC TCACATGCCC GCTGTCCCAG GGGTCTCCCT
GAGCCTGCCC CAGCTGGGCT GTTGGCTGGG GGCATGGGGG AGGCTCTGAA GAGATACCCA CAGAGTGTGG TCCCTCCACT
AGGAGTTAAC TACCCTACAC CTCTGGGCCC TGCAGGAGGC CTGGGAGGGC AAGGGTCCTA CGGAGGGACC AGGTGTCTAG
AGGCAACAGT GTTCTGAGCC CCCACCTGCC TGACCATCCC ATGAGCAGTC CAGAGCTTCA GGGCTGGGCA GGTCCTGGGG
AGGCTGAGAC TGCAGAGGAG CCACCTGGGC TGGGAGAAGG TGCTTGGGCT TCTGCGGTGA GGCAGGGGAG TCTGCTTGTC
TTAGATGTTG GTGGTGCAGC CCCAGGACCA AGCTTAAGGA GAGGAGAGCA TCTGCTCTGA GACGGATGGA AGGAGAGAGG
TTGAGGATGC ACTGGCCTGT TCTGTAGGAG AGACTGGCCA GA -3'(FRAG.NO:__)(SEQ.NO:3005)
5'-CGCATTTGTG TTTTAATAAA AGAATCTGGA AGATAAATAG TCTTGAAGAG AGACAAAGGA AGGAAAATTT AAATCCTTAG
ATTCAAGCAG AAGAATTCCA TGTGGAAGGT TTGGGTTGTT GTTGTTGTTG TTTGGTGTGT TTTTTGTTTT TTTGTTTTTT
TGTTTTTTTT TGAGATGGAG TCTCGCTGTG TTACCGGGAG CGACAGAGCC GCACGGCCGA GTCGAGTCCC AGCCAGCTAC
CATCCCTCTG GAGCTTACCG GCCGGCCTTG GCTTCCCCAG GAATCCCTGG AGCTAGCGGC TGCTGAAGGC GTCGAGGTGT
GGGGGCACTT GGACAGAACA GTCAGGCAGC CGGGAGCTCT GCCAGCTTTG GTGACCTTGG GTGCTTGCCT CGTGCCCCTT
GGTGCCCGTC TGCTGATGTG CCCAGCCTGT GCCCGCCATG CCGCCCTCCA TCTCAGCTTT CCAGGCCGCC TACATCGGCA
TCGAGGTGCT CATCGCCCTG GTCTCTGTGC CCGGGAACGT GCTGGTGATC TGGGCGGTGA AGGTGAACCA GGCGCTGCGG
GATGCCACCT TCTGCTTCAT CGTGTCGCTG GCGGTGGCTG ATGTGGCCGT GGGTGCCCTG GTCATCCCCC TCGCCATCCT

CATCAACATT GGGCCACAGA CCTACTTCCA CACCTGCCTC ATGGTTGCCT GTCCGGTCCT CATCCTCACC CAGAGCTCCA
TCCTGGCCCT GCTGGCAATT GCTGTGGACC GCTACCTCCG GGTCAAGATC CCTCTCCGGT ACAAGATGGT GGTGACCCCC
CGGAGGGCGG CGGTGGCCAT AGCCGGCTGC TGGATCCTCT CCTTCGTGGT GGGACTGACC CCTATGTTTG GCTGGAACAA
TCTGAGTGCG GTGGAGCGGG CCTGGGCAGC CAACGGCAGC ATGGGGGAGC CCGTGATCAA GTGCGAGTTC GAGAAGGTCA
TCAGCATGGA GTACATGGTC TACTTCAACT TCTTTGTGTG GGTGCTGCCC CCGCTTCTCC TCATGGTCCT CATCTACCTG
GAGGTCTTCT ACCTAATCCG CAAGCAGCTC AACAAGAAGG TGTCGGCCTC CTCCGGCGAC CCGCAGAAGT ACTATGGGAA
GGAGCTGAAG ATCGCCAAGT CGCTGGCCCT CATCCTCTTC CTCTTTGCCC TCAGCTGGCT GCCTTTGCAC ATCCTCAACT
GCATCACCCT CTTCTGCCCG TCCTGCCACA AGCCCAGCAT CCTTACCTAC ATTGCCATCT TCCTCACGCA CGGCAACTCG
GCCATGAACC CCATTGTCTA TGCCTTCCGC ATCCAGAAGT TCCGCGTCAC CTTCCTTAAG ATTTGGAATG ACCATTTCCG
CTGCCAGCCT GCACCTCCCA TTGACGAGGA TCTCCCAGAA GAGAGGCCTG ATGACTAGAC CCCGCCTTCC GCTCCCACCG
CCCACATCCA GTGGGGTCTC AGTCCAGTCC TCACATGCCC GCTGTCCCAG GGGTCTCCCT GAGCCTGCCC CAGCTGGGCT
GTTGGCTGGG GGCATGGGGG AGGCTCTGAA GAGATACCCA CAGAGTGTGG TCCCTCCACT AGGAGTTAAC TACCCTACAC
CTCTGGGCCC TGCAGGAGGC CTGGGAGGGC AAGGGTCCTA CGGAGGGACC AGGTGTCTAG AGGCAACAGT GTTCTGAGCC
CCCACCTGCC TGACCATCCC ATGAGCAGTC CAGAGCTTCA GGGCTGGGCA GGTCCTGGGG AGGCTGAGAC TGCAGAGGAG
CCACCTGGGC TGGGAGAAGG TGCTTGGGCT TCTGCGGTGA GGCAGGGGAG TCTGCTTGTC TTAGATGTTG GTGGTGCAGC
CCCAGGACCA AGCTTAAGGA GAGGAGAGCA TCTGCTCTGA GACGGATGGA AGGAGAGAGG TTGAGGATGC ACTGGCCTGT
TCTGTAGGAG AGACTGGCCA GA -3' (FRAG. NO:__)(SEQ ID NO:11803)

5'- ATGAGTGTCA GAAGTGTGAA GGGTGCCTGT TCTGAATCCC AGAGCCTCCT CTCCCTCTGT GAGGCTGGCA GGTGAGGAAG
GGTTTAACCT CACTGGAAGG AATCCCTGGA GCTAGCGGCT GCTGAAGGCG TCGAGGTGTG GGGGCACTTG GACAGAACAG
TCAGGCAGCC GGGAGCTCTG CCAGCTTTGG TGACCTTGGG CCGGGCTGGG AGCGCTGCGG CGGGAGCCGG AGGACTATGA
GCTGCCGCGC GTTGTCCAGA GCCCAGCCCA GCCCTACGCG CGCGGCCCGG AGCTCTGTTC CCTGGAACTT TGGGCACTGC
CTCTGGGACC CCTGCCGGCC AGCAGGCAGG ATGGTGCTTG CCTCGTGCCC CTTGGTGCCC GTCTGCTGAT GTGCCCAGCC
TGTGCCCGCC ATGCCGCCCT CCATCTCAGC TTTCCAGGCC GCCTACATCG GCATCGAGGT GCTCATCGCC CTGGTCTCTG
TGCCCGGGAA CGTGCTGGTG ATCTGGGCGG TGAAGGTGAA CCAGGCGCTG CGGGATGCCA CCTTCTGCTT CATCGTGTCG
CTGGCGGTGG CTGATGTGGC CGTGGGTGCC CTGGTCATCC CCCTCGCCAT CCTCATCAAC ATTGGGCCAC AGACCTACTT
CCACACCTGC CTCATGGTTG CCTGTCCGGT CCTCATCCTC ACCCAGAGCT CCATCCTGGC CCTGCTGGCA ATTGCTGTGG
ACCGCTACCT CCGGGTCAAG ATCCCTCTCC GGTACAAGAT GGTGGTGACC CCCCGGAGGG CGGCGGTGGC CATAGCCGGC
TGCTGGATCC TCTCCTTCGT GGTGGGACTG ACCCCTATGT TTGGCTGGAA CAATCTGAGT GCGGTGGAGC GGGCCTGGGC
AGCCAACGGC AGCATGGGGG AGCCCGTGAT CAAGTGCGAG TTCGAGAAGG TCATCAGCAT GGAGTACATG GTCTACTTCA
ACTTCTTTGT GTGGGTGCTG CCCCCGCTTC TCCTCATGGT CCTCATCTAC CTGGAGGTCT TCTACCTAAT CCGCAAGCAG
CTCAACAAGA AGGTGTCGGC CTCCTCCGGC GACCCGCAGA AGTACTATGG GAAGGAGCTG AAGATCGCCA AGTCGCTGGC
CCTCATCCTC TTCCTCTTTG CCCTCAGCTG GCTGCCTTTG CACATCCTCA ACTGCATCAC CCTCTTCTGC CCGTCCTGCC
ACAAGCCCAG CATCCTTACC TACATTGCCA TCTTCCTCAC GCACGGCAAC TCGGCCATGA ACCCCATTGT CTATGCCTTC
CGCATCCAGA AGTTCCGCGT CACCTTCCTT AAGATTTGGA ATGACCATTT CCGCTGCCAG CCTGCACCTC CCATTGACGA
GGATCTCCCA GAAGAGAGGC CTGATGACTA GACCCCGCCT TCCGCTCCCA CCAGCCCACA TCCAGTGGGG TCTCAGTCCA
GTCCTCACAT GCCCGCTGTC CCAGGGGTCT CCCTGAGCCT GCCCCAGCTG GGCTGTTGGC TGGGGGCATG GGGGAGGCTC
TGAAGAGATA CCCACAGAGT GTGGTCCCTC CACTAGGAGT TAACTACCCT ACACCTCTGG GCCCTGCAGG AGGCCTGGGA
GGGCAAGGGT CCTACGGAGG GACCAGGTGT CTAGAGGCAA CAGTGTTCTG AGCCCCCACC TGCCTGACCA TCCCATGAGC
AGTCCAGCGC TTCAGGGCTG GGCAGGTCCT GGGGAGGCTG AGACTGCAGA GGAGCCACCT GGGCTGGGAG AAGGTGCTTG
GGCTTCTGCG GTGAGGCAGG GGAGTCTGCT TGTCTTAGAT GTTGGTGGTG CAGCCCCAGG ACCAAGCTTA AGGAGAGGAG
AGCATCTGCT CTGAGACGGA TGGAAGGAGA GAGGTTGAGG ATGCACTGGC CTGTTCTGTA GGAGAGACTG GCCAGAGGCA
GCTAAGGGGC AGGAATCAAG GAGCCTCCGT TCCCACCTCT GAGGACTCTG GACCCCAGGC CATACCAGGT GCTAGGGTGC
CTGCTCTCCT TGCCCTGGGC CAGCCCAGGA TTGTACGTGG GAGAGGCAGA AAGGGTAGGT TCAGTAATCA TTTCTGATGA
TTTGCTGGAG TGCTGGCTCC ACGCCCTGGG GAGTGAGCTT GGTGCGGTAG GTGCTGGCCT CAAACAGCCA CGAGGTGGTA
GCTCTGAGCC CTCCTTCTTG CCCTGAGCTT TCCGGGGAGG AGCCTGGAGT GTAATTACCT GTCATCTGGG CCACCAGCTC
CACTGGCCCC CGTTGCCGGG CCTGGACTGT CCTAGGTGAC CCCATCTCTG CTGCTTCTGG GCCTGATGGA GAGGAGAACA
CTAGACATGC CAACTCGGGA GCATTCTGCC TGCCTGGGAA CGGGGTGGAC GAGGGAGTGT CTGTAAGGAC TCAGTGTTGA
CTGTAGGCGC CCCTGGGGTG GGTTTAGCAG GCTGCAGCAG GCAGAGGAGG AGTACCCCCC TGAGAGCATG TGGGGGAAGG
CCTTGCTGTC ATGTGAATCC CTCAATACCC CTAGTATCTG GCTGGGTTTT CAGGGGCTTT GGAAGCTCTG TTGCAGGTGT
CCGGGGGTCT AGGACTTTAG GGATCTGGGA TCTGGGGAAG GACCAACCCA TGCCCTGCCA AGCCTGGAGC CCCTGTGTTG
GGGGGCAAGG TGGGGGAGCC TGGAGCCCCT GTGTGGGAGG GCGAGGCGGG GGAGCCTGGA GCCCCTGTGT GGGAGGGCGA
GGCGGGGGAT CCTGGAGCCC CTGTGTCGGG GGGCGAGGGA GGGGAGGTGG CCGTCGGTTG ACCTTCTGAA CATGAGTGTC
AACTCCAGGA CTTGCTTCCA AGCCCTTCCC TCTGTTGGAA ATTGGGTGTG CCCTGGCTCC CAAGGGAGGC CCATGTGACT
AATAAAAAAC TGTGAACCCT -3' (FRAG. NO:__)(SEQ ID NO:11802)

5'- ATGCCGCCCT CCATCTCAGC TTTCCAGGCC GCCTACATCG GCATCGAGGT GCTCATCGCC CTGGTCTCTG TGCCCGGGAA
CGTGCTGGTG ATCTGGGCGG TGAAGGTGAA CCAGGCGCTG CGGGATGCCA CCTTCTGCTT CATCGTCTCG CTGGCGGTGG
CTGATGTGGC CGTGGGTGCC CTGGTCATCC CCCTCGCCAT CCTCATCAAC ATTGGGCCAC AGACCTACTT CCACACCTGC
CTCATGGTTG CCTGTCCGGT CCTCATCCTC ACCCAGAGCT CCATCCTGGC CCTGCTGGCA ATTGCTGTGG ACCGCTACCT
CCGGGTCAAG ATCCCTCTCC GGTACAAGAT GGTGGTGACC CCCCGGAGGG CGGCGGTGGC CATAGCCGGC TGCTGGATCC
TCTCCTTCGT GGTGGGACTG ACCCCTATGT TTGGCTGGAA CAATCTGAGT GCGGTGGAGC GGGCCTGGGC AGCCAACGGC
AGCATGGGGG AGCCCGTGAT CAAGTGCGAG TTCGAGAAGG TCATCAGCAT GGAGTACATG GTCTACTTCA ACTTCTTTGT
GTGGGTGCTG CCCCCGCTTC TCCTCATGGT CCTCATCTAC CTGGAGGTCT TCTACCTAAT CCGCAAGCAG CTCAACAAGA
AGGTGTCGGC CTCCTCCGGC GACCCGCAGA AGTACTATGG GAAGGAGCTG AAGATCGCCA AGTCGCTGGC CCTCATCCTC
TTCCTCTTTG CCCTCAGCTG GCTGCCTTTG CACATCCTCA ACTGCATCAC CCTCTTCTGC CCGTCCTGCC ACAAGCCCAG
CATCCTTACC TACATTGCCA TCTTCCTCAC GCACGGCAAC TCGGCCATGA ACCCCATTGT CTATGCCTTC CGCATCCAGA
AGTTCCGCGT CACCTTCCTT AAGATTTGGA ATGACCATTT CCGCTGCCAG CCTGCACCTC CCATTGACGA GGATCTCCCA
GAAGAGAGGC CTGATGACTA G-3' (FRAG. NO:__)(SEQ ID NO:11801)

5'-CGCATTTGTG TTTTAATAAA AGAATCTGGA AGATAAATAG TCTTGAAGAG AGACAAAGGA AGGAAAATTT AAATCCTTAG
ATTCAAGCAG AAGAATTCCA TGTGGAAGGT TTGGGTTGTT GTTGTTGTTG TTTGGTGTGT TTTTTGTTTT TTTGTTTTTT
TGTTTTTTTT TGAGATGGAG TCTCGCTGTG TTACCGGGAG CGACAGAGCC GCACGGCCGA GTCGAGTCCC AGCCAGCTAC
CATCCCTCTG GAGCTTACCG GCCGGCCTTG GCTTCCCCAG GAATCCCTGG AGCTAGCGGC TGCTGAAGGC GTCGAGGTGT
GGGGGCACTT GGACAGAACA GTCAGGCAGC CGGGAGCTCT GCCAGCTTTG GTGACCTTGG GTGCTTGCCT CGTGCCCCTT
GGTGCCCGTC TGCTGATGTG CCCAGCCTGT GCCCGCCATG CCGCCCTCCA TCTCAGCTTT CCAGGCCGCC TACATCGGCA
TCGAGGTGCT CATCGCCCTG GTCTCTGTGC CCGGGAACGT GCTGGTGATC TGGGCGGTGA AGGTGAACCA GGCGCTGCGG
GATGCCACCT TCTGCTTCAT CGTGTCGCTG GCGGTGGCTG ATGTGGCCGT GGGTGCCCTG GTCATCCCCC TCGCCATCCT

CATCAACATT GGGCCACAGA CCTACTTCCA CACCTGCCTC ATGGTTGCCT GTCCGGTCCT CATCCTCACC CAGAGCTCCA TCCTGGCCCT GCTGGCAATT GCTGTGGACC GCTACCTCCG GGTCAAGATC CCTCTCCGGT ACAAGATGGT GGTGACCCCC CGGAGGGCGG CGGTGGCCAT AGCCGGCTGC TGGATCCTCT CCTTCGTGGT GGGACTGACC CCTATGTTTG GCTGGAACAA TCTGAGTGCG GTGGAGCGGG CCTGGGCAGC CAACGGCAGC ATGGGGGAGC CCGTGATCAA GTGCGAGTTC GAGAAGGTCA TCAGCATGGA GTACATGGTC TACTTCAACT TCTTTGTGTG GGTGCTGCCC CCGCTTCTCC TCATGGTCCT CATCTACCTG GAGGTCTTCT ACCTAATCCG CAAGCAGCTC AACAAGAAGG TGTCGGCCTC CTCCGGCGAC CCGCAGAAGT ACTATGGGAA GGAGCTGAAG ATCGCCAAGT CGCTGGCCCT CATCCTCTTC CTCTTTGCCC TCAGCTGGCT GCCTTTGCAC ATCCTCAACT GCATCACCCT CTTCTGCCCG TCCTGCCACA AGCCCAGCAT CCTTACCTAC ATTGCCATCT TCCTCACGCA CGGCAACTCG GCCATGAACC CCATTGTCTA TGCCTTCCGC ATCCAGAAGT TCCGCGTCAC CTTCCTTAAG ATTTGGAATG ACCATTTCCG CTGCCAGCCT GCACCTCCCA TTGACGAGGA TCTCCCAGAA GAGAGGCCTG ATGACTAGAC CCCGCCTTCC GCTCCCACCG CCCACATCCA GTGGGGTCTC AGTCCAGTCC TCACATGCCC GCTGTCCCAG GGGTCTCCCT GAGCCTGCCC CAGCTGGGCT GTTGGCTGGG GGCATGGGGG AGGCTCTGAA GAGATACCCA CAGAGTGTGG TCCCTCCACT AGGAGTTAAC TACCCTACAC CTCTGGGCCC TGCAGGAGGC CTGGGAGGGC AAGGGTCCTA CGGAGGGACC AGGTGTCTAG AGGCAACAGT GTTCTGAGCC CCCACCTGCC TGACCATCCC ATGAGCAGTC CAGAGCTTCA GGGCTGGGCA GGTCCTGGGG AGGCTGAGAC TGCAGAGGAG CCACCTGGGC TGGGAGAAGG TGCTTGGGCT TCTGCGGTGA GGCAGGGGAG TCTGCTTGTC TTAGATGTTG GTGGTGCAGC CCCAGGACCA AGCTTAAGGA GAGGAGAGCA TCTGCTCTGA GACGGATGGA AGGAGAGAGG TTGAGGATGC ACTGGCCTGT TCTGTAGGAG AGACTGGCCA GA -3'

(FRAG. NO:__)(SEQ ID NO:11791)

5'-ATGAGTGTCA GAAGTGTGAA GGGTGCCTGT TCTGAATCCC AGAGCCTCCT CTCCCTCTGT GAGGCTGGCA GGTGAGGAAG GGTTTAACCT CACTGGAAGG AATCCCTGGA GCTAGCGGCT GCTGAAGGCG TCGAGGTGTG GGGGCACTTG GACAGAACAG TCAGGCAGCC GGGAGCTCTG CCAGCTTTGG TGACCTTGGG CCGGGCTGGG AGCGCTGCGG CGGGAGCCGG AGGACTATGA GCTGCCGCGC GTTGTCCAGA GCCCAGCCCA GCCCTACGCG CGCGGCCCGG AGCTCTGTTC CCTGGAACTT TGGGCACTGC CTCTGGGACC CCTGCCGGCC AGCAGGCAGG ATGGTGCTTG CCTCGTGCCC CTTGGTGCCC GTCTGCTGAT GTGCCCAGCC TGTGCCCGCC ATGCCGCCCT CCATCTCAGC TTTCCAGGCC GCCTACATCG GCATCGAGGT GCTCATCGCC CTGGTCTCTG TGCCCGGGAA CGTGCTGGTG ATCTGGGCGG TGAAGGTGAA CCAGGCGCTG CGGGATGCCA CCTTCTGCTT CATCGTGTCG CTGGCGGTGG CTGATGTGGC CGTGGGTGCC CTGGTCATCC CCCTCGCCAT CCTCATCAAC ATTGGGCCAC AGACCTACTT CCACACCTGC CTCATGGTTG CCTGTCCGGT CCTCATCCTC ACCCAGAGCT CCATCCTGGC CCTGCTGGCA ATTGCTGTGG ACCGCTACCT CCGGGTCAAG ATCCCTCTCC GGTACAAGAT GGTGGTGACC CCCCGGAGGG CGGCGGTGGC CATAGCCGGC TGCTGGATCC TCTCCTTCGT GGTGGGACTG ACCCCTATGT TTGGCTGGAA CAATCTGAGT GCGGTGGAGC GGGCCTGGGC AGCCAACGGC AGCATGGGGG AGCCCGTGAT CAAGTGCGAG TTCGAGAAGG TCATCAGCAT GGAGTACATG GTCTACTTCA ACTTCTTTGT GTGGGTGCTG CCCCCGCTTC TCCTCATGGT CCTCATCTAC CTGGAGGTCT TCTACCTAAT CCGCAAGCAG CTCAACAAGA AGGTGTCGGC CTCCTCCGGC GACCCGCAGA AGTACTATGG GAAGGAGCTG AAGATCGCCA AGTCGCTGGC CCTCATCCTC TTCCTCTTTG CCCTCAGCTG GCTGCCTTTG CACATCCTCA ACTGCATCAC CCTCTTCTGC CCGTCCTGCC ACAAGCCCAG CATCCTTACC TACATTGCCA TCTTCCTCAC GCACGGCAAC TCGGCCATGA ACCCCATTGT CTATGCCTTC CGCATCCAGA AGTTCCGCGT CACCTTCCTT AAGATTTGGA ATGACCATTT CCGCTGCCAG CCTGCACCTC CCATTGACGA GGATCTCCCA GAAGAGAGGC CTGATGACTA GACCCCGCCT TCCGCTCCCA CCAGCCCACA TCCAGTGGGG TCTCAGTCCA GTCCTCACAT GCCCGCTGTC CCAGGGGTCT CCCTGAGCCT GCCCCAGCTG GGCTGTTGGC TGGGGGCATG GGGGAGGCTC TGAAGAGATA CCCACAGAGT GTGGTCCCTC CACTAGGAGT TAACTACCCT ACACCTCTGG GCCCTGCAGG AGGCCTGGGA GGGCAAGGGT CCTACGGAGG GACCAGGTGT CTAGAGGCAA CAGTGTTCTG AGCCCCCACC TGCCTGACCA TCCCATGAGC AGTCCAGCGC TTCAGGGCTG GGCAGGTCCT GGGGAGGCTG AGACTGCAGA GGAGCCACCT GGGCTGGGAG AAGGTGCTTG GGCTTCTGCG GTGAGGCAGG GGAGTCTGCT TGTCTTAGAT GTTGGTGGTG CAGCCCCAGG ACCAAGCTTA AGGAGAGGAG AGCATCTGCT CTGAGACGGA TGGAAGGAGA GAGGTTGAGG ATGCACTGGC CTGTTCTGTA GGAGAGACTG GCCAGAGGCA GCTAAGGGGC AGGAATCAAG GAGCCTCCGT TCCCACCTCT GAGGACTCTG GACCCCAGGC CATACCAGGT GCTAGGGTGC CTGCTCTCCT TGCCCTGGGC CAGCCCAGGA TTGTACGTGG GAGAGGCAGA AAGGGTAGGT TCAGTAATCA TTTCTGATGA TTTGCTGGAG TGCTGGCTCC ACGCCCTGGG GAGTGAGCTT GGTGCGGTAG GTGCTGGCCT CAAACAGCCA CGAGGTGGTA GCTCTGAGCC CTCCTTCTTG CCCTGAGCTT TCCGGGGAGG AGCCTGGAGT GTAATTACCT GTCATCTGGG CCACCAGCTC CACTGGCCCC CGTTGCCGGG CCTGGACTGT CCTAGGTGAC CCCATCTCTG CTGCTTCTGG GCCTGATGGA GAGGAGAACA CTAGACATGC CAACTCGGGA GCATTCTGCC TGCCTGGGAA CGGGGTGGAC GAGGGAGTGT CTGTAAGGAC TCAGTGTTGA CTGTAGGCGC CCCTGGGGTG GGTTTAGCAG GCTGCAGCAG GCAGAGGAGG AGTACCCCCC TGAGAGCATG TGGGGGAAGG CCTTGCTGTC ATGTGAATCC CTCAATACCC CTAGTATCTG GCTGGGTTTT CAGGGGCTTT GGAAGCTCTG TTGCAGGTGT CCGGGGGTCT AGGACTTTAG GGATCTGGGA TCTGGGGAAG GACCAACCCA TGCCCTGCCA AGCCTGGAGC CCCTGTGTTG GGGGGCAAGG TGGGGGAGCC TGGAGCCCCT GTGTGGGAGG GCGAGGCGGG GGAGCCTGGA GCCCCTGTGT GGGAGGGCGA GGCGGGGGAT CCTGGAGCCC CTGTGTCGGG GGGCGAGGGA GGGGAGGTGG CCGTCGGTTG ACCTTCTGAA CATGAGTGTC AACTCCAGGA CTTGCTTCCA AGCCCTTCCC TCTGTTGGAA ATTGGGTGTG CCCTGGCTCC CAAGGGAGGC CCATGTGACT AATAAAAAAC TGTGAACCCT -3' (FRAG. NO:__) (SEQ ID NO:11790)

5'-ATGCCGCCCT CCATCTCAGC TTTCCAGGCC GCCTACATCG GCATCGAGGT GCTCATCGCC CTGGTCTCTG TGCCCGGGAA CGTGCTGGTG ATCTGGGCGG TGAAGGTGAA CCAGGCGCTG CGGGATGCCA CCTTCTGCTT CATCGTCTCG CTGGCGGTGG CTGATGTGGC CGTGGGTGCC CTGGTCATCC CCCTCGCCAT CCTCATCAAC ATTGGGCCAC AGACCTACTT CCACACCTGC CTCATGGTTG CCTGTCCGGT CCTCATCCTC ACCCAGAGCT CCATCCTGGC CCTGCTGGCA ATTGCTGTGG ACCGCTACCT CCGGGTCAAG ATCCCTCTCC GGTACAAGAT GGTGGTGACC CCCCGGAGGG CGGCGGTGGC CATAGCCGGC TGCTGGATCC TCTCCTTCGT GGTGGGACTG CCCCTATGT TTGGCTGGAA CAATCTGAGT GCGGTGGAGC GGGCCTGGGC AGCCAACGGC AGCATGGGGG AGCCCGTGAT CAAGTGCGAG TTCGAGAAGG TCATCAGCAT GGAGTACATG GTCTACTTCA ACTTCTTTGT GTGGGTGCTG CCCCCGCTTC TCCTCATGGT CCTCATCTAC CTGGAGGTCT TCTACCTAAT CCGCAAGCAG CTCAACAAGA AGGTGTCGGC CTCCTCCGGC GACCCGCAGA AGTACTATGG GAAGGAGCTG AAGATCGCCA AGTCGCTGGC CCTCATCCTC TTCCTCTTTG CCCTCAGCTG GCTGCCTTTG CACATCCTCA ACTGCATCAC CCTCTTCTGC CCGTCCTGCC ACAAGCCCAG CATCCTTACC TACATTGCCA TCTTCCTCAC GCACGGCAAC TCGGCCATGA ACCCCATTGT CTATGCCTTC CGCATCCAGA AGTTCCGCGT CACCTTCCTT AAGATTTGGA ATGACCATTT CCGCTGCCAG CCTGCACCTC CCATTGACGA GGATCTCCCA GAAGAGAGGC CTGATGACTA G (FRAG NO: __) (SEQ ID NO:12483)

5'-GAT GGA GGG CGG CAT GGC GGG-3' (FRAG. NO: 1657) (SEQ ID NO:11781)

5'-G CGG GTC GCC GG-3' (FRAG. NO: 1658) (SEQ ID NO:11782)

5'-GGC GGG CBC BGG C-3' (FRAG. NO: 1659) (SEQ ID NO:11783)

5'-GGC GGG CBC-3' (FRAG. NO: 1660) (SEQ ID NO:11784)

5'-GC GGC CTG G-3' (FRAG. NO: 1661) (SEQ ID NO:11785)

5'-GGB GGG CGG C-3' (FRAG. NO: 1662) (SEQ ID NO:11786)

5'-GBT GGB GGG-3' (FRAG. NO: 1663) (SEQ ID NO:11787)

5'-GG CTG GGC-3' (FRAG. NO: 1664) (SEQ ID NO:11788)
5'-GC GGC CTG GAA AGC TGA GAT GGA GGG CGG CAT GGC GGG CAC AGG CTG GGC-3' (FRAG. 1) (SEQ ID NO:9380)
5'-C GGC CTG GAA AGC TGA GAT GGA GGG CGG CAT GGC GGG CAC AGG CTG GGC-3'(FRAG 2) (SEQ. .ID NO:12)
5'-GGC CTG GAA AGC TGA GAT GGA GGG CGG CAT GGC GGG CAC AGG CTG GGC-3'(FRAG 3)(SEQ ID NO:9382)
5'-GC CTG GAA AGC TGA GAT GGA GGG CGG CAT GGC GGG CAC AGG CTG GGC-3' (FRAG 4)(SEQ ID NO:9383)
5'-C CTG GAA AGC TGA GAT GGA GGG CGG CAT GGC GGG CAC AGG CTG GGC-3' (FRAG 5) (SEQ ID NO:9384)
5'-CTG GAA AGC TGA GAT GGA GGG CGG CAT GGC GGG CAC AGG CTG GGC-3' (FRAG 6) (SEQ ID NO:9385)
5'-TG GAA AGC TGA GAT GGA GGG CGG CAT GGC GGG CAC AGG CTG GGC-3' (FRAG 7) (SEQ ID NO:9386)
5'-G GAA AGC TGA GAT GGA GGG CGG CAT GGC GGG CAC AGG CTG GGC-3' (FRAG 8) (SEQ ID NO:9387)
5'-GAA AGC TGA GAT GGA GGG CGG CAT GGC GGG CAC AGG CTG GGC-3' (FRAG 9) (SEQ ID NO:9388)
5'-AA AGC TGA GAT GGA GGG CGG CAT GGC GGG CAC AGG CTG GGC-3' (FRAG 10) (SEQ ID NO:9389)
5'-A AGC TGA GAT GGA GGG CGG CAT GGC GGG CAC AGG CTG GGC-3' (FRAG 11) (SEQ ID NO:9390)
5'-AGC TGA GAT GGA GGG CGG CAT GGC GGG CAC AGG CTG GGC-3' (FRAG 12) (SEQ ID NO:9391)
5'-GC TGA GAT GGA GGG CGG CAT GGC GGG CAC AGG CTG GGC-3' (FRAG 13) (SEQ ID NO:9392)
5'-C TGA GAT GGA GGG CGG CAT GGC GGG CAC AGG CTG GGC-3' (FRAG 14) (SEQ ID NO:9393)
5'-TGA GAT GGA GGG CGG CAT GGC GGG CAC AGG CTG GGC-3' (FRAG 15) (SEQ ID NO:9394)
5'-GA GAT GGA GGG CGG CAT GGC GGG CAC AGG CTG GGC-3' (FRAG 16) (SEQ ID NO:9395)
5'-A GAT GGA GGG CGG CAT GGC GGG CAC AGG CTG GGC-3' (FRAG 17) (SEQ ID NO:9396)
5'-GAT GGA GGG CGG CAT GGC GGG CAC AGG CTG GGC-3' (FRAG 18) (SEQ ID NO:9397)
5'-AT GGA GGG CGG CAT GGC GGG CAC AGG CTG GGC-3' (FRAG 19) (SEQ ID NO:9398)
5'-T GGA GGG CGG CAT GGC GGG CAC AGG CTG GGC-3' (FRAG 20) (SEQ ID NO:9399)
5'-GGA GGG CGG CAT GGC GGG CAC AGG CTG GGC-3' (FRAG 21) (SEQ ID NO:9400)
5'-GA GGG CGG CAT GGC GGG CAC AGG CTG GGC-3' (FRAG 22) (SEQ ID NO:9401)
5'-A GGG CGG CAT GGC GGG CAC AGG CTG GGC-3' (FRAG 23) (SEQ ID NO:9402)
5'-GGG CGG CAT GGC GGG CAC AGG CTG GGC-3' (FRAG 24) (SEQ ID NO:9403)
5'-GG CGG CAT GGC GGG CAC AGG CTG GGC-3' (FRAG 25) (SEQ ID NO:9404)
5'-G CGG CAT GGC GGG CAC AGG CTG GGC-3' (FRAG 26) (SEQ ID NO:9405)
5'-CGG CAT GGC GGG CAC AGG CTG GGC-3' (FRAG 27) (SEQ ID NO:9406)
5'-GG CAT GGC GGG CAC AGG CTG GGC-3' (FRAG 28) (SEQ ID NO:9407)
5'-G CAT GGC GGG CAC AGG CTG GGC-3' (FRAG 29) (SEQ ID NO:9408)
5'-CAT GGC GGG CAC AGG CTG GGC-3' (FRAG 30) (SEQ ID NO:9409)
5'-AT GGC GGG CAC AGG CTG GGC-3' (FRAG 31) (SEQ ID NO:9410)
5'-T GGC GGG CAC AGG CTG GGC-3' (FRAG 32) (SEQ ID NO:9411)
5'-GGC GGG CAC AGG CTG GGC-3' (FRAG 33) (SEQ ID NO:9412)
5'-GC GGG CAC AGG CTG GGC-3' (FRAG 34) (SEQ ID NO:9413)
5'-C GGG CAC AGG CTG GGC-3' (FRAG 35) (SEQ ID NO:9414)
5'-GGG CAC AGG CTG GGC-3' (FRAG 36) (SEQ ID NO:9415)
5'-GG CAC AGG CTG GGC-3' (FRAG 37) (SEQ ID NO:9416)
5'-G CAC AGG CTG GGC-3' (FRAG 38) (SEQ ID NO:9417)
5'-CAC AGG CTG GGC-3' (FRAG 39) (SEQ ID NO:9418)
5'-AC AGG CTG GGC-3' (FRAG 40) (SEQ ID NO:9419)
5'-C AGG CTG GGC-3' (FRAG 41) (SEQ ID NO:9420)
5'-AGG CTG GGC-3' (FRAG 42) (SEQ ID NO:9421)
5'-GGC GGC CTG GAA AGC TGA GAT GGA GGG CGG CAT GGC GGG CAC AGG CTG GGC-3'(FRAG 43)(SEQ ID NO:9422)
5'-GGC GGC CTG GAA AGC TGA GAT GGA GGG CGG CAT GGC GGG CAC AGG CTG GG-3' (FRAG 44)(SEQ ID NO:9423)
5'-GGC GGC CTG GAA AGC TGA GAT GGA GGG CGG CAT GGC GGG CAC AGG CTG G-3' (FRAG 45)(SEQ ID NO:9424)
5'-GGC GGC CTG GAA AGC TGA GAT GGA GGG CGG CAT GGC GGG CAC AGG CTG -3' (FRAG 46)(SEQ ID NO:9425)
5'-GGC GGC CTG GAA AGC TGA GAT GGA GGG CGG CAT GGC GGG CAC AGG CT-3' (FRAG 47)(SEQ ID NO:9426)
5'-GGC GGC CTG GAA AGC TGA GAT GGA GGG CGG CAT GGC GGG CAC AGG C-3' (FRAG 48)(SEQ ID NO:9427)
5'-GGC GGC CTG GAA AGC TGA GAT GGA GGG CGG CAT GGC GGG CAC AGG -3' (FRAG 49) (SEQ ID NO:9428)
5'-GGC GGC CTG GAA AGC TGA GAT GGA GGG CGG CAT GGC GGG CAC AG-3' (FRAG 50) (SEQ ID NO:9429)
5'-GGC GGC CTG GAA AGC TGA GAT GGA GGG CGG CAT GGC GGG CAC A-3' (FRAG 51) (SEQ ID NO:9430)
5'-GGC GGC CTG GAA AGC TGA GAT GGA GGG CGG CAT GGC GGG CAC-3' (FRAG 52) (SEQ ID NO:9431)
5'-GGC GGC CTG GAA AGC TGA GAT GGA GGG CGG CAT GGC GGG CA-3' (FRAG 53) (SEQ ID NO:9432)
5'-GGC GGC CTG GAA AGC TGA GAT GGA GGG CGG CAT GGC GGG C-3' (FRAG 54) (SEQ ID NO:9433)
5'-GGC GGC CTG GAA AGC TGA GAT GGA GGG CGG CAT GGC GGG -3' (FRAG 55) (SEQ ID NO:9434)
5'-GGC GGC CTG GAA AGC TGA GAT GGA GGG CGG CAT GGC GG-3' (FRAG 56) (SEQ ID NO:9435)
5'-GGC GGC CTG GAA AGC TGA GAT GGA GGG CGG CAT GGC G-3'(FRAG 57) (SEQ ID NO:9436)
5'-GGC GGC CTG GAA AGC TGA GAT GGA GGG CGG CAT GGC -3' (FRAG 58) (SEQ ID NO:9437)
5'-GGC GGC CTG GAA AGC TGA GAT GGA GGG CGG CAT GG -3' (FRAG 59) (SEQ ID NO:9438)
5'-GGC GGC CTG GAA AGC TGA GAT GGA GGG CGG CAT G -3' (FRAG 60) (SEQ ID NO:9439)
5'-GGC GGC CTG GAA AGC TGA GAT GGA GGG CGG CAT -3' (FRAG 61) (SEQ ID NO:9440)
5'-GGC GGC CTG GAA AGC TGA GAT GGA GGG CGG CA-3' (FRAG 62) (SEQ ID NO:9441)
5'-GGC GGC CTG GAA AGC TGA GAT GGA GGG CGG C-3' (FRAG 63) (SEQ ID NO:9442)
5'-GGC GGC CTG GAA AGC TGA GAT GGA GGG CGG -3' (FRAG 64) (SEQ ID NO:9443)
5'-GGC GGC CTG GAA AGC TGA GAT GGA GGG CG -3' (FRAG 65) (SEQ ID NO:9444)
5'-GGC GGC CTG GAA AGC TGA GAT GGA GGG C -3' (FRAG 66) (SEQ ID NO:9445)
5'-GGC GGC CTG GAA AGC TGA GAT GGA GGG -3' (FRAG 67) (SEQ ID NO:9446)
5'-GGC GGC CTG GAA AGC TGA GAT GGA GG -3' (FRAG 68) (SEQ ID NO:9447)
5'-GGC GGC CTG GAA AGC TGA GAT GGA G -3' (FRAG 69) (SEQ ID NO:9448)
5'-GGC GGC CTG GAA AGC TGA GAT GGA -3' (FRAG 70) (SEQ ID NO:9449)
5'-GGC GGC CTG GAA AGC TGA GAT GG -3' (FRAG 71) (SEQ ID NO:9450)
5'-GGC GGC CTG GAA AGC TGA GAT G -3' (FRAG 72) (SEQ ID NO:9451)
5'-GGC GGC CTG GAA AGC TGA GAT -3' (FRAG 73) (SEQ ID NO:9452)
5'-GGC GGC CTG GAA AGC TGA GA-3' (FRAG 74) (SEQ ID NO:9453)

5'-GGC GGC CTG GAA AGC TGA G-3' (FRAG 75) (SEQ ID NO:9454)
5'-GGC GGC CTG GAA AGC TGA-3' (FRAG 76) (SEQ ID NO:9455)
5'-GGC GGC CTG GAA AGC TG-3' (FRAG 77) (SEQ ID NO:9456)
5'-GGC GGC CTG GAA AGC T-3' (FRAG 78) (SEQ ID NO:9457)
5'-GGC GGC CTG GAA AGC-3' (FRAG 79) (SEQ ID NO:9458)
5'-GGC GGC CTG GAA AG-3' (FRAG 80) (SEQ ID NO:9459)
5'-GGC GGC CTG GAA A-3' (FRAG 81) (SEQ ID NO:9460)
5'-GGC GGC CTG GAA-3' (FRAG 82) (SEQ ID NO:9461)
5'-GGC GGC CTG GA-3' (FRAG 83) (SEQ ID NO:9462)
5'-GGC GGC CTG G-3' (FRAG 84) (SEQ ID NO:9463)
5'-GC GGC CTG GAA AGC TGA GAT GGA GGG CGG CAT GGC GGG CAC AGG CTG GGC-3' (FRAG 85) (SEQ ID NO:9464)
5'-GC GGC CTG GAA AGC TGA GAT GGA GGG CGG CAT GGC GGG CAC AGG CTG GG-3' (FRAG 86) (SEQ ID NO:9465)
5'-GC GGC CTG GAA AGC TGA GAT GGA GGG CGG CAT GGC GGG CAC AGG CTG G-3' (FRAG 87) (SEQ ID NO:9466)
5'-GC GGC CTG GAA AGC TGA GAT GGA GGG CGG CAT GGC GGG CAC AGG CTG -3' (FRAG 88) (SEQ ID NO:9467)
5'-GC GGC CTG GAA AGC TGA GAT GGA GGG CGG CAT GGC GGG CAC AGG CT-3' (FRAG 89) (SEQ ID NO:9468)
5'-GC GGC CTG GAA AGC TGA GAT GGA GGG CGG CAT GGC GGG CAC AGG C-3' (FRAG 90) (SEQ ID NO:9469)
5'-GC GGC CTG GAA AGC TGA GAT GGA GGG CGG CAT GGC GGG CAC AGG -3' (FRAG 91) (SEQ ID NO:9470)
5'-GC GGC CTG GAA AGC TGA GAT GGA GGG CGG CAT GGC GGG CAC AG-3' (FRAG 92) (SEQ ID NO:9471)
5'-GC GGC CTG GAA AGC TGA GAT GGA GGG CGG CAT GGC GGG CAC A-3' (FRAG 93) (SEQ ID NO:9472)
5'-GC GGC CTG GAA AGC TGA GAT GGA GGG CGG CAT GGC GGG CAC-3' (FRAG 94) (SEQ ID NO:9473)
5'-GC GGC CTG GAA AGC TGA GAT GGA GGG CGG CAT GGC GGG CA-3' (FRAG 95) (SEQ ID NO:9474)
5'-GC GGC CTG GAA AGC TGA GAT GGA GGG CGG CAT GGC GGG C-3' (FRAG 96) (SEQ ID NO:9475)
5'-GC GGC CTG GAA AGC TGA GAT GGA GGG CGG CAT GGC GGG -3' (FRAG 97) (SEQ ID NO:9476)
5'-GC GGC CTG GAA AGC TGA GAT GGA GGG CGG CAT GGC GG-3' (FRAG 98) (SEQ ID NO:9477)
5'-GC GGC CTG GAA AGC TGA GAT GGA GGG CGG CAT GGC G-3' (FRAG 99) (SEQ ID NO:9478)
5'-GC GGC CTG GAA AGC TGA GAT GGA GGG CGG CAT GGC -3' (FRAG 100) (SEQ ID NO:9479)
5'-GC GGC CTG GAA AGC TGA GAT GGA GGG CGG CAT GG -3' (FRAG 101) (SEQ ID NO:9480)
5'-GC GGC CTG GAA AGC TGA GAT GGA GGG CGG CAT G -3' (FRAG 102) (SEQ ID NO:9481)
5'-GC GGC CTG GAA AGC TGA GAT GGA GGG CGG CAT -3' (FRAG 103) (SEQ ID NO:9482)
5'-GC GGC CTG GAA AGC TGA GAT GGA GGG CGG CA-3' (FRAG 104) (SEQ ID NO:9483)
5'-GC GGC CTG GAA AGC TGA GAT GGA GGG CGG C-3' (FRAG 105) (SEQ ID NO:9484)
5'-GC GGC CTG GAA AGC TGA GAT GGA GGG CGG -3' (FRAG 106) (SEQ ID NO:9485)
5'-GC GGC CTG GAA AGC TGA GAT GGA GGG CG -3' (FRAG 107) (SEQ ID NO:9486)
5'-GC GGC CTG GAA AGC TGA GAT GGA GGG C -3' (FRAG 108) (SEQ ID NO:9487)
5'-GC GGC CTG GAA AGC TGA GAT GGA GGG -3' (FRAG 109) (SEQ ID NO:9488)
5'-GC GGC CTG GAA AGC TGA GAT GGA GG -3' (FRAG 110) (SEQ ID NO:9489)
5'-GC GGC CTG GAA AGC TGA GAT GGA G -3' (FRAG 111) (SEQ ID NO:9490)
5'-GC GGC CTG GAA AGC TGA GAT GGA -3' (FRAG 112) (SEQ ID NO:9491)
5'-GC GGC CTG GAA AGC TGA GAT GG -3' (FRAG 113) (SEQ ID NO:9492)
5'-GC GGC CTG GAA AGC TGA GAT G -3' (FRAG 114) (SEQ ID NO:9493)
5'-GC GGC CTG GAA AGC TGA GAT -3' (FRAG 115) (SEQ ID NO:9494)
5'-GC GGC CTG GAA AGC TGA GA-3' (FRAG 116) (SEQ ID NO:9495)
5'-GC GGC CTG GAA AGC TGA G-3' (FRAG 117) (SEQ ID NO:9496)
5'-GC GGC CTG GAA AGC TGA-3' (FRAG 118) (SEQ ID NO:9497)
5'-GC GGC CTG GAA AGC TG-3' (FRAG 119) (SEQ ID NO:9498)
5'-GC GGC CTG GAA AGC T-3' (FRAG 120) (SEQ ID NO:9499)
5'-GC GGC CTG GAA AGC-3' (FRAG 121) (SEQ ID NO:9500)
5'-GC GGC CTG GAA AG-3' (FRAG 122) (SEQ ID NO:9501)
5'-GC GGC CTG GAA A-3' (FRAG 123) (SEQ ID NO:9502)
5'-GC GGC CTG GAA-3' (FRAG 124) (SEQ ID NO:9503)
5'-GC GGC CTG GA-3' (FRAG 125) (SEQ ID NO:9504)
5'-C GGC CTG GAA AGC TGA GAT GGA GGG CGG CAT GGC GGG CAC AGG CTG GGC-3' (FRAG 126) (SEQ ID NO:9505)
5'-C GGC CTG GAA AGC TGA GAT GGA GGG CGG CAT GGC GGG CAC AGG CTG GG-3' (FRAG 127) (SEQ ID NO:9506)
5'-C GGC CTG GAA AGC TGA GAT GGA GGG CGG CAT GGC GGG CAC AGG CTG G-3' (FRAG 128) (SEQ ID NO:9507)
5'-C GGC CTG GAA AGC TGA GAT GGA GGG CGG CAT GGC GGG CAC AGG CTG -3' (FRAG 129) (SEQ ID NO:9508)
5'-C GGC CTG GAA AGC TGA GAT GGA GGG CGG CAT GGC GGG CAC AGG CT-3' (FRAG 130) (SEQ ID NO:9509)
5'-C GGC CTG GAA AGC TGA GAT GGA GGG CGG CAT GGC GGG CAC AGG C-3' (FRAG 131) (SEQ ID NO:9510)
5'-C GGC CTG GAA AGC TGA GAT GGA GGG CGG CAT GGC GGG CAC AGG -3' (FRAG 132) (SEQ ID NO:9511)
5'-C GGC CTG GAA AGC TGA GAT GGA GGG CGG CAT GGC GGG CAC AG-3' (FRAG 133) (SEQ ID NO:9512)
5'-C GGC CTG GAA AGC TGA GAT GGA GGG CGG CAT GGC GGG CAC A-3' (FRAG 134) (SEQ ID NO:9513)
5'-C GGC CTG GAA AGC TGA GAT GGA GGG CGG CAT GGC GGG CAC-3' (FRAG 135) (SEQ ID NO:9514)
5'-C GGC CTG GAA AGC TGA GAT GGA GGG CGG CAT GGC GGG CA-3' (FRAG 136) (SEQ ID NO:9515)
5'-C GGC CTG GAA AGC TGA GAT GGA GGG CGG CAT GGC GGG C-3' (FRAG 137) (SEQ ID NO:9516)
5'-C GGC CTG GAA AGC TGA GAT GGA GGG CGG CAT GGC GGG -3' (FRAG 138) (SEQ ID NO:9517)
5'-C GGC CTG GAA AGC TGA GAT GGA GGG CGG CAT GGC GG-3' (FRAG 139) (SEQ ID NO:9518)
5'-C GGC CTG GAA AGC TGA GAT GGA GGG CGG CAT GGC G-3' (FRAG 140) (SEQ ID NO:9519)
5'-C GGC CTG GAA AGC TGA GAT GGA GGG CGG CAT GGC -3' (FRAG 141) (SEQ ID NO:9520)
5'-C GGC CTG GAA AGC TGA GAT GGA GGG CGG CAT GG -3' (FRAG 142) (SEQ ID NO:9521)
5'-C GGC CTG GAA AGC TGA GAT GGA GGG CGG CAT G -3' (FRA 143) (SEQ ID NO:9522)
5'-C GGC CTG GAA AGC TGA GAT GGA GGG CGG CAT -3' (FRAG 144) (SEQ ID NO:9523)
5'-C GGC CTG GAA AGC TGA GAT GGA GGG CGG CA-3' (FRAG 145) (SEQ ID NO:9524)
5'-C GGC CTG GAA AGC TGA GAT GGA GGG CGG C-3' (FRAG 146) (SEQ ID NO:9525)
5'-C GGC CTG GAA AGC TGA GAT GGA GGG CGG -3' (FRAG 147) (SEQ ID NO:9526)
5'-C GGC CTG GAA AGC TGA GAT GGA GGG CG -3' (FRAG 148) (SEQ ID NO:9527)
5'-C GGC CTG GAA AGC TGA GAT GGA GGG C -3' (FRAG 148) (SEQ ID NO:9528)

5'-C GGC CTG GAA AGC TGA GAT GGA GGG -3' (FRAG 150) (SEQ ID NO:9529)
5'-C GGC CTG GAA AGC TGA GAT GGA GG -3' (FRAG 151) (SEQ ID NO:9530)
5'-C GGC CTG GAA AGC TGA GAT GGA G -3' (FRAG 152) (SEQ ID NO:9531)
5'-C GGC CTG GAA AGC TGA GAT GGA -3' (FRAG 153) (SEQ ID NO:9532)
5'-C GGC CTG GAA AGC TGA GAT GG -3' (FRAG 154) (SEQ ID NO:9533)
5'-C GGC CTG GAA AGC TGA GAT G -3' (FRAG 155) (SEQ ID NO:9534)
5'-C GGC CTG GAA AGC TGA GAT -3' (FRAG 156) (SEQ ID NO:9535)
5'-C GGC CTG GAA AGC TGA GA-3' (FRAG 157) (SEQ ID NO:9536)
5'-C GGC CTG GAA AGC TGA G-3' (FRAG 158) (SEQ ID NO:9537)
5'-C GGC CTG GAA AGC TGA-3' (FRAG 159) (SEQ ID NO:9538)
5'-C GGC CTG GAA AGC TG-3' (FRAG 160) (SEQ ID NO:9539)
5'-C GGC CTG GAA AGC T-3' (FRAG 161) (SEQ ID NO:9540)
5'-C GGC CTG GAA AGC-3' (FRAG 162) (SEQ ID NO:9541)
5'-C GGC CTG GAA AG-3' (FRAG 163) (SEQ ID NO:9542)
5'-C GGC CTG GAA A-3' (FRAG 164) (SEQ ID NO:9543)
5'-C GGC CTG GAA-3' (FRAG 165) (SEQ ID NO:9544)
5'- GGC CTG GAA AGC TGA GAT GGA GGG CGG CAT GGC GGG CAC AGG CTG GGC-3' (FRAG 166) (SEQ ID NO:9545)
5'- GGC CTG GAA AGC TGA GAT GGA GGG CGG CAT GGC GGG CAC AGG CTG GG-3' (FRAG 167) (SEQ ID NO:9546)
5'- GGC CTG GAA AGC TGA GAT GGA GGG CGG CAT GGC GGG CAC AGG CTG G-3' (FRAG 168) (SEQ ID NO:9547)
5'- GGC CTG GAA AGC TGA GAT GGA GGG CGG CAT GGC GGG CAC AGG CTG -3' (FRAG 169) (SEQ ID NO:9548)
5'- GGC CTG GAA AGC TGA GAT GGA GGG CGG CAT GGC GGG CAC AGG CT-3' (FRAG 170) (SEQ ID NO:9549)
5'- GGC CTG GAA AGC TGA GAT GGA GGG CGG CAT GGC GGG CAC AGG C-3' (FRAG 171) (SEQ ID NO:9550)
5'- GGC CTG GAA AGC TGA GAT GGA GGG CGG CAT GGC GGG CAC AGG -3' (FRAG 172) (SEQ ID NO:9551)
5'- GGC CTG GAA AGC TGA GAT GGA GGG CGG CAT GGC GGG CAC AG-3' (FRAG 173) (SEQ ID NO:9552)
5'- GGC CTG GAA AGC TGA GAT GGA GGG CGG CAT GGC GGG CAC A-3' (FRAG 174) (SEQ ID NO:9553)
5'- GGC CTG GAA AGC TGA GAT GGA GGG CGG CAT GGC GGG CAC-3' (FRAG 175) (SEQ ID NO:9554)
5'- GGC CTG GAA AGC TGA GAT GGA GGG CGG CAT GGC GGG CA-3' (FRAG 176) (SEQ ID NO:9555)
5'- GGC CTG GAA AGC TGA GAT GGA GGG CGG CAT GGC GGG C-3' (FRAG 177) (SEQ ID NO:9556)
5'- GGC CTG GAA AGC TGA GAT GGA GGG CGG CAT GGC GGG -3' (FRAG 178) (SEQ ID NO:9557)
5'- GGC CTG GAA AGC TGA GAT GGA GGG CGG CAT GGC GG-3' (FRAG 179) (SEQ ID NO:9558)
5'- GGC CTG GAA AGC TGA GAT GGA GGG CGG CAT GGC G-3' (FRAG 180) (SEQ ID NO:9559)
5'- GGC CTG GAA AGC TGA GAT GGA GGG CGG CAT GGC -3' (FRAG 181) (SEQ ID NO:9560)
5'- GGC CTG GAA AGC TGA GAT GGA GGG CGG CAT GG -3' (FRAG 182) (SEQ ID NO:9561)
5'- GGC CTG GAA AGC TGA GAT GGA GGG CGG CAT G -3' (FRAG 183) (SEQ ID NO:9562)
5'- GGC CTG GAA AGC TGA GAT GGA GGG CGG CAT -3' (FRAG 184) (SEQ ID NO:9563)
5'- GGC CTG GAA AGC TGA GAT GGA GGG CGG CA-3' (FRAG 185) (SEQ ID NO:9564)
5'- GGC CTG GAA AGC TGA GAT GGA GGG CGG C-3' (FRAG 186) (SEQ ID NO:9565)
5'- GGC CTG GAA AGC TGA GAT GGA GGG CGG -3' (FRAG 187) (SEQ ID NO:9566)
5'- GGC CTG GAA AGC TGA GAT GGA GGG CG -3' (FRAG 188) (SEQ ID NO:9567)
5'- GGC CTG GAA AGC TGA GAT GGA GGG C -3' (FRAG 189) (SEQ ID NO:9568)
5'- GGC CTG GAA AGC TGA GAT GGA GGG -3' (FRAG 190) (SEQ ID NO:9569)
5'- GGC CTG GAA AGC TGA GAT GGA GG -3' (FRAG 191) (SEQ ID NO:9570)
5'- GGC CTG GAA AGC TGA GAT GGA G -3' (FRAG 192) (SEQ ID NO:9571)
5'- GGC CTG GAA AGC TGA GAT GGA -3' (FRAG 193) (SEQ ID NO:9572)
5'- GGC CTG GAA AGC TGA GAT GG -3' (FRAG 194) (SEQ ID NO:9573)
5'- GGC CTG GAA AGC TGA GAT G -3' (FRAG 195) (SEQ ID NO:9574)
5'- GGC CTG GAA AGC TGA GAT -3' (FRAG 196) (SEQ ID NO:9575)
5'- GGC CTG GAA AGC TGA GA-3' (FRAG 197) (SEQ ID NO:9576)
5'- GGC CTG GAA AGC TGA G-3' (FRAG 198) (SEQ ID NO:9577)
5'- GGC CTG GAA AGC TGA-3' (FRAG 199) (SEQ ID NO:9578)
5'- GGC CTG GAA AGC TG-3' (FRAG 200 (SEQ ID NO:9579)
5'- GGC CTG GAA AGC T-3' (FRAG 201) (SEQ ID NO:9580)
5'- GGC CTG GAA AGC-3' (FRAG 202) (SEQ ID NO:9581)
5'- GGC CTG GAA AG-3' (FRAG 203) (SEQ ID NO:9582)
5'- GGC CTG GAA A-3' (FRAG 204) (SEQ ID NO:9583)
5'- GC CTG GAA AGC TGA GAT GGA GGG CGG CAT GGC GGG CAC AGG CTG GGC-3' (FRAG 205) (SEQ ID NO:9584)
5'- GC CTG GAA AGC TGA GAT GGA GGG CGG CAT GGC GGG CAC AGG CTG GG-3' (FRAG 206) (SEQ ID NO:9585)
5'- GC CTG GAA AGC TGA GAT GGA GGG CGG CAT GGC GGG CAC AGG CTG G-3' (FRAG 207) (SEQ ID NO:9586)
5'- GC CTG GAA AGC TGA GAT GGA GGG CGG CAT GGC GGG CAC AGG CTG -3' (FRAG 208) (SEQ ID NO:9587)
5'- GC CTG GAA AGC TGA GAT GGA GGG CGG CAT GGC GGG CAC AGG CT-3' (FRAG 209) (SEQ ID NO:9588)
5'- GC CTG GAA AGC TGA GAT GGA GGG CGG CAT GGC GGG CAC AGG C-3' (FRAG 210) (SEQ ID NO:9589)
5'- GC CTG GAA AGC TGA GAT GGA GGG CGG CAT GGC GGG CAC AGG -3' (FRAG 211) (SEQ ID NO:9590)
5'- GC CTG GAA AGC TGA GAT GGA GGG CGG CAT GGC GGG CAC AG-3' (FRAG 212) (SEQ ID NO:9591)
5'- GC CTG GAA AGC TGA GAT GGA GGG CGG CAT GGC GGG CAC A-3' (FRAG 213) (SEQ ID NO:9592)
5'- GC CTG GAA AGC TGA GAT GGA GGG CGG CAT GGC GGG CAC-3' (FRAG 214) (SEQ ID NO:9593)
5'- GC CTG GAA AGC TGA GAT GGA GGG CGG CAT GGC GGG CA-3' (FRAG 215) (SEQ ID NO:9594)
5'- GC CTG GAA AGC TGA GAT GGA GGG CGG CAT GGC GGG C-3' (FRAG 216) (SEQ ID NO:9595)
5'- GC CTG GAA AGC TGA GAT GGA GGG CGG CAT GGC GGG -3' (FRAG 217) (SEQ ID NO:9596)
5'- GC CTG GAA AGC TGA GAT GGA GGG CGG CAT GGC GG-3' (FRAG 218) (SEQ ID NO:9597)
5'- GC CTG GAA AGC TGA GAT GGA GGG CGG CAT GGC G-3' (FRAG 219) (SEQ ID NO:9598)
5'- GC CTG GAA AGC TGA GAT GGA GGG CGG CAT GGC -3' (FRAG 220) (SEQ ID NO:9599)
5'- GC CTG GAA AGC TGA GAT GGA GGG CGG CAT GG -3' (FRAG 221) (SEQ ID NO:9600)
5'- GC CTG GAA AGC TGA GAT GGA GGG CGG CAT G -3' (FRAG 222) (SEQ ID NO:9601)
5'- GC CTG GAA AGC TGA GAT GGA GGG CGG CAT -3' (FRAG 223) (SEQ ID NO:9602)
5'- GC CTG GAA AGC TGA GAT GGA GGG CGG CA-3' (FRAG 224) (SEQ ID NO:9603)

5'- GC CTG GAA AGC TGA GAT GGA GGG CGG C-3' (FRAG 225) (SEQ ID NO:9604)
5'- GC CTG GAA AGC TGA GAT GGA GGG CGG -3' (FRAG 226) (SEQ ID NO:9605)
5'- GC CTG GAA AGC TGA GAT GGA GGG CG -3' (FRAG 227) (SEQ ID NO:9606)
5'- GC CTG GAA AGC TGA GAT GGA GGG C -3' (FRAG 228) (SEQ ID NO:9607)
5'- GC CTG GAA AGC TGA GAT GGA GGG -3' (FRAG 229) (SEQ ID NO:9608)
5'- GC CTG GAA AGC TGA GAT GGA GG -3' (FRAG 230) (SEQ ID NO:9609)
5'- GC CTG GAA AGC TGA GAT GGA G -3' (FRAG 231) (SEQ ID NO:9610)
5'- GC CTG GAA AGC TGA GAT GGA -3' (FRAG 232) (SEQ ID NO:9611)
5'- GC CTG GAA AGC TGA GAT GG -3' (FRAG 233) (SEQ ID NO:9612)
5'- GC CTG GAA AGC TGA GAT G -3' (FRAG 234) (SEQ ID NO:9613)
5'- GC CTG GAA AGC TGA GAT -3' (FRAG 235) (SEQ ID NO:9614)
5'- GC CTG GAA AGC TGA GA-3' (FRAG 236) (SEQ ID NO:9615)
5'- GC CTG GAA AGC TGA G-3' (FRAG 237) (SEQ ID NO:9616)
5'- GC CTG GAA AGC TGA-3' (FRAG 238) (SEQ ID NO:9617)
5'- GC CTG GAA AGC TG-3' (FRAG 239) (SEQ ID NO:9618)
5'- GC CTG GAA AGC T-3' (FRAG 240) (SEQ ID NO:9619)
5'- GC CTG GAA AGC-3' (FRAG 241) (SEQ ID NO:9620)
5'- GC CTG GAA AG-3' (FRAG 242) (SEQ ID NO:9621)
5'- C CTG GAA AGC TGA GAT GG A GGG CGG CAT GGC GGG CAC AGG CTG GGC-3' (FRAG 243) (SEQ ID NO:9622)
5'- C CTG GAA AGC TGA GAT GGA GGG CGG CAT GGC GGG CAC AGG CTG GG-3' (FRAG 244) (SEQ ID NO:9623)
5'- C CTG GAA AGC TGA GAT GGA GGG CGG CAT GGC GGG CAC AGG CTG G-3' (FRAG 245) (SEQ ID NO:9624)
5'- C CTG GAA AGC TGA GAT GGA GGG CGG CAT GGC GGG CAC AGG CTG -3' (FRAG 246) (SEQ ID NO:9625)
5'- C CTG GAA AGC TGA GAT GGA GGG CGG CAT GGC GGG CAC AGG CT-3' (FRAG 247) (SEQ ID NO:9626)
5'- C CTG GAA AGC TGA GAT GGA GGG CGG CAT GGC GGG CAC AGG C-3' (FRAG 248) (SEQ ID NO:9627)
5'- C CTG GAA AGC TGA GAT GGA GGG CGG CAT GGC GGG CAC AGG -3' (FRAG 249) (SEQ ID NO:9628)
5'- C CTG GAA AGC TGA GAT GGA GGG CGG CAT GGC GGG CAC AG-3' (FRAG 250) (SEQ ID NO:9629)
5'- C CTG GAA AGC TGA GAT GGA GGG CGG CAT GGC GGG CAC A-3' (FRAG 251) (SEQ ID NO:9630)
5'- C CTG GAA AGC TGA GAT GGA GGG CGG CAT GGC GGG CAC-3' (FRAG 252) (SEQ ID NO:9631)
5'- C CTG GAA AGC TGA GAT GGA GGG CGG CAT GGC GGG CA-3' (FRAG 253) (SEQ ID NO:9632)
5'- C CTG GAA AGC TGA GAT GGA GGG CGG CAT GGC GGG C-3' (FRAG 254) (SEQ ID NO:9633)
5'- C CTG GAA AGC TGA GAT GGA GGG CGG CAT GGC GGG -3' (FRAG 255) (SEQ ID NO:9634)
5'- C CTG GAA AGC TGA GAT GGA GGG CGG CAT GGC GG-3' (FRAG 256) (SEQ ID NO:9635)
5'- C CTG GAA AGC TGA GAT GGA GGG CGG CAT GGC G-3' (FRAG 257) (SEQ ID NO:9636)
5'- C CTG GAA AGC TGA GAT GGA GGG CGG CAT GGC -3' (FRAG 258) (SEQ ID NO:9637)
5'- C CTG GAA AGC TGA GAT GGA GGG CGG CAT GG -3' (FRAG 259) (SEQ ID NO:9638)
5'- C CTG GAA AGC TGA GAT GGA GGG CGG CAT G -3' (FRAG 260) (SEQ ID NO:9639)
5'- C CTG GAA AGC TGA GAT GGA GGG CGG CAT -3' (FRAG 261) (SEQ ID NO:9640)
5'- C CTG GAA AGC TGA GAT GGA GGG CGG CA-3' (FRAG 262) (SEQ ID NO:9641)
5'- C CTG GAA AGC TGA GAT GGA GGG CGG C-3' (FRAG 263) (SEQ ID NO:9642)
5'- C CTG GAA AGC TGA GAT GGA GGG CGG -3' (FRAG 264) (SEQ ID NO:9643)
5'- C CTG GAA AGC TGA GAT GGA GGG CG -3' (FRAG 265) (SEQ ID NO:9644)
5'- C CTG GAA AGC TGA GAT GGA GGG C -3' (FRAG 266) (SEQ ID NO:9645)
5'- C CTG GAA AGC TGA GAT GGA GGG -3' (FRAG 267) (SEQ ID NO:9646)
5'- C CTG GAA AGC TGA GAT GGA GG -3' (FRAG 268) (SEQ ID NO:9647)
5'- C CTG GAA AGC TGA GAT GGA G -3' (FRAG 269) (SEQ ID NO:9648)
5'- C CTG GAA AGC TGA GAT GGA -3' (FRAG 270) (SEQ ID NO:9649)
5'- C CTG GAA AGC TGA GAT GG -3' (FRAG 271) (SEQ ID NO:9650)
5'- C CTG GAA AGC TGA GAT G -3' (FRAG 272) (SEQ ID NO:9651)
5'- C CTG GAA AGC TGA GAT -3' (FRAG 273) (SEQ ID NO:9652)
5'- C CTG GAA AGC TGA GA-3' (FRAG 274) (SEQ ID NO:9653)
5'- C CTG GAA AGC TGA G-3' (FRAG 275) (SEQ ID NO:9654)
5'- C CTG GAA AGC TGA-3' (FRAG 276) (SEQ ID NO:9655)
5'- C CTG GAA AGC TG-3' (FRAG 277) (SEQ ID NO:9656)
5'- C CTG GAA AGC T-3' (FRAG 278) (SEQ ID NO:9657)
5'- C CTG GAA AGC-3' (FRAG 279) (SEQ ID NO:9658)
5'- CTG GAA AGC TGA GAT GGA GGG CGG CAT GGC GGG CAC AGG CTG GGC-3' (FRAG 280) (SEQ ID NO:9659)
5'- CTG GAA AGC TGA GAT GGA GGG CGG CAT GGC GGG CAC AGG CTG GG-3' (FRAG 281) (SEQ ID NO:9660)
5'- CTG GAA AGC TGA GAT GGA GGG CGG CAT GGC GGG CAC AGG CTG G-3' (FRAG 282) (SEQ ID NO:9661)
5'- CTG GAA AGC TGA GAT GGA GGG CGG CAT GGC GGG CAC AGG CTG -3' (FRAG 283) (SEQ ID NO:9662)
5'- CTG GAA AGC TGA GAT GGA GGG CGG CAT GGC GGG CAC AGG CT-3' (FRAG 284) (SEQ ID NO:9663)
5'- CTG GAA AGC TGA GAT GGA GGG CGG CAT GGC GGG CAC AGG C-3' (FRAG 285) (SEQ ID NO:9664)
5'- CTG GAA AGC TGA GAT GGA GGG CGG CAT GGC GGG CAC AGG -3' (FRAG 286) (SEQ ID NO:9665)
5'- CTG GAA AGC TGA GAT GGA GGG CGG CAT GGC GGG CAC AG-3' (FRAG 287) (SEQ ID NO:9666)
5'- CTG GAA AGC TGA GAT GGA GGG CGG CAT GGC GGG CAC A-3' (FRAG 288) (SEQ ID NO:9667)
5'- CTG GAA AGC TGA GAT GGA GGG CGG CAT GGC GGG CAC-3' (FRAG 289) (SEQ ID NO:9668)
5'- CTG GAA AGC TGA GAT GGA GGG CGG CAT GGC GGG CA-3' (FRAG 290) (SEQ ID NO:9669)
5'- CTG GAA AGC TGA GAT GGA GGG CGG CAT GGC GGG C-3' (FRAG 291) (SEQ ID NO:9670)
5'- CTG GAA AGC TGA GAT GGA GGG CGG CAT GGC GGG -3' (FRAG 292) (SEQ ID NO:9671)
5'- CTG GAA AGC TGA GAT GGA GGG CGG CAT GGC GG-3' (FRAG 293) (SEQ ID NO:9672)
5'- CTG GAA AGC TGA GAT GGA GGG CGG CAT GGC G-3' (FRAG 294) (SEQ ID NO:9673)
5'- CTG GAA AGC TGA GAT GGA GGG CGG CAT GGC -3' (FRAG 295) (SEQ ID NO:9674)
5'- CTG GAA AGC TGA GAT GGA GGG CGG CAT GG -3' (FRAG 296) (SEQ ID NO:9675)
5'- CTG GAA AGC TGA GAT GGA GGG CGG CAT G -3' (FRAG 297) (SEQ ID NO:9676)
5'- CTG GAA AGC TGA GAT GGA GGG CGG CAT -3' (FRAG 298) (SEQ ID NO:9677)
5'- CTG GAA AGC TGA GAT GGA GGG CGG CA-3' (FRAG 299) (SEQ ID NO:9678)

5'- CTG GAA AGC TGA GAT GGA GGG CGG C-3' (FRAG 300) (SEQ ID NO:9679)
5'- CTG GAA AGC TGA GAT GGA GGG CGG -3' (FRAG 301) (SEQ ID NO:9680)
5'- CTG GAA AGC TGA GAT GGA GGG CG -3' (FRAG 302) (SEQ ID NO:9681)
5'- CTG GAA AGC TGA GAT GGA GGG C -3' (FRAG 303) (SEQ ID NO:9682)
5'- CTG GAA AGC TGA GAT GGA GGG -3' (FRAG 304) (SEQ ID NO:9683)
5'- CTG GAA AGC TGA GAT GGA GG -3' (FRAG 305) (SEQ ID NO:9684)
5'- CTG GAA AGC TGA GAT GGA G -3' (FRAG 306) (SEQ ID NO:9685)
5'- CTG GAA AGC TGA GAT GGA -3' (FRAG 307) (SEQ ID NO:9686)
5'- CTG GAA AGC TGA GAT GG -3' (FRAG 308) (SEQ ID NO:9687)
5'- CTG GAA AGC TGA GAT G -3' (FRAG 309) (SEQ ID NO:9688)
5'- CTG GAA AGC TGA GAT -3' (FRAG 310) (SEQ ID NO:9689)
5'- CTG GAA AGC TGA GA-3' (FRAG 311) (SEQ ID NO:9690)
5'- CTG GAA AGC TGA G-3' (FRAG 312) (SEQ ID NO:9691)
5'- CTG GAA AGC TGA-3' (FRAG 313) (SEQ ID NO:9692)
5'- CTG GAA AGC TG-3' (FRAG 314) (SEQ ID NO:9693)
5'- CTG GAA AGC T-3' (FRAG 315) (SEQ ID NO:9694)
5'- TG GAA AGC TGA GAT GGA GGG CGG CAT GGC GGG CAC AGG CTG GGC-3' (FRAG 316) (SEQ ID NO:9695)
5'- TG GAA AGC TGA GAT GGA GGG CGG CAT GGC GGG CAC AGG CTG GG-3' (FRAG 317) (SEQ ID NO:9696)
5'- TG GAA AGC TGA GAT GGA GGG CGG CAT GGC GGG CAC AGG CTG G-3' (FRAG 318) (SEQ ID NO:9697)
5'- TG GAA AGC TGA GAT GGA GGG CGG CAT GGC GGG CAC AGG CTG -3' (FRAG 319) (SEQ ID NO:9698)
5'- TG GAA AGC TGA GAT GGA GGG CGG CAT GGC GGG CAC AGG CT-3' (FRAG 320) (SEQ ID NO:9699)
5'- TG GAA AGC TGA GAT GGA GGG CGG CAT GGC GGG CAC AGG C-3' (FRAG 321) (SEQ ID NO:9700)
5'- TG GAA AGC TGA GAT GGA GGG CGG CAT GGC GGG CAC AGG -3' (FRAG 322) (SEQ ID NO:9701)
5'- TG GAA AGC TGA GAT GGA GGG CGG CAT GGC GGG CAC AG-3' (FRAG 323) (SEQ ID NO:9702)
5'- TG GAA AGC TGA GAT GGA GGG CGG CAT GGC GGG CAC A-3' (FRAG 324) (SEQ ID NO:9703)
5'- TG GAA AGC TGA GAT GGA GGG CGG CAT GGC GGG CAC-3' (FRAG 325) (SEQ ID NO:9704)
5'- TG GAA AGC TGA GAT GGA GGG CGG CAT GGC GGG CA-3' (FRAG 326) (SEQ ID NO:9705)
5'- TG GAA AGC TGA GAT GGA GGG CGG CAT GGC GGG C-3' (FRAG 327) (SEQ ID NO:9706)
5'- TG GAA AGC TGA GAT GGA GGG CGG CAT GGC GGG -3' (FRAG 328) (SEQ ID NO:9707)
5'- TG GAA AGC TGA GAT GGA GGG CGG CAT GGC GG-3' (FRAG 329) (SEQ ID NO:9708)
5'- TG GAA AGC TGA GAT GGA GGG CGG CAT GGC G-3' (FRAG 330) (SEQ ID NO:9709)
5'- TG GAA AGC TGA GAT GGA GGG CGG CAT GGC -3' (FRAG 331) (SEQ ID NO:9710)
5'- TG GAA AGC TGA GAT GGA GGG CGG CAT GG -3' (FRAG 332) (SEQ ID NO:9711)
5'- TG GAA AGC TGA GAT GGA GGG CGG CAT G -3' (FRAG 333) (SEQ ID NO:9712)
5'- TG GAA AGC TGA GAT GGA GGG CGG CAT -3' (FRAG 334) (SEQ ID NO:9713)
5'- TG GAA AGC TGA GAT GGA GGG CGG CA-3' (FRAG 335) (SEQ ID NO:9714)
5'- TG GAA AGC TGA GAT GGA GGG CGG C-3' (FRAG 336) (SEQ ID NO:9715)
5'- TG GAA AGC TGA GAT GGA GGG CGG -3' (FRAG 337) (SEQ ID NO:9716)
5'- TG GAA AGC TGA GAT GGA GGG CG -3' (FRAG 338) (SEQ ID NO:9717)
5'- TG GAA AGC TGA GAT GGA GGG C -3' (FRAG 339) (SEQ ID NO:9718)
5'- TG GAA AGC TGA GAT GGA GGG -3' (FRAG 340) (SEQ ID NO:9719)
5'- TG GAA AGC TGA GAT GGA GG -3' (FRAG 341) (SEQ ID NO:9720)
5'- TG GAA AGC TGA GAT GGA G -3' (FRAG 342) (SEQ ID NO:9721)
5'- TG GAA AGC TGA GAT GGA -3' (FRAG 343) (SEQ ID NO:9722)
5'- TG GAA AGC TGA GAT GG -3' (FRAG 344) (SEQ ID NO:9723)
5'- TG GAA AGC TGA GAT G -3' (FRAG 345) (SEQ ID NO:9724)
5'- TG GAA AGC TGA GAT -3' (FRAG 346) (SEQ ID NO:9725)
5'- TG GAA AGC TGA GA-3' (FRAG 347) (SEQ ID NO:9726)
5'- TG GAA AGC TGA G-3' (FRAG 348) (SEQ ID NO:9727)
5'- TG GAA AGC TGA-3' (FRAG 349) (SEQ ID NO:9728)
5'- TG GAA AGC TG-3' (FRAG 350) (SEQ ID NO:9729)
5'- G GAA AGC TGA GAT GGA GGG CGG CAT GGC GGG CAC AGG CTG GGC-3' (FRAG 351) (SEQ ID NO:9730)
5'- G GAA AGC TGA GAT GGA GGG CGG CAT GGC GGG CAC AGG CTG GG-3' (FRAG 352) (SEQ ID NO:9731)
5'- G GAA AGC TGA GAT GGA GGG CGG CAT GGC GGG CAC AGG CTG G-3' (FRAG 353) (SEQ ID NO:9732)
5'- G GAA AGC TGA GAT GGA GGG CGG CAT GGC GGG CAC AGG CTG -3' (FRAG 354) (SEQ ID NO:9733)
5'- G GAA AGC TGA GAT GGA GGG CGG CAT GGC GGG CAC AGG CT-3' (FRAG 355) (SEQ ID NO:9734)
5'- G GAA AGC TGA GAT GGA GGG CGG CAT GGC GGG CAC AGG C-3' (FRAG 356) (SEQ ID NO:9735)
5'- G GAA AGC TGA GAT GGA GGG CGG CAT GGC GGG CAC AGG -3' (FRAG 357) (SEQ ID NO:9736)
5'- G GAA AGC TGA GAT GGA GGG CGG CAT GGC GGG CAC AG-3' (FRAG 358) (SEQ ID NO:9737)
5'- G GAA AGC TGA GAT GGA GGG CGG CAT GGC GGG CAC A-3' (FRAG 359) (SEQ ID NO:9738)
5'- G GAA AGC TGA GAT GGA GGG CGG CAT GGC GGG CAC-3' (FRAG 360) (SEQ ID NO:9739)
5'- G GAA AGC TGA GAT GGA GGG CGG CAT GGC GGG CA-3' (FRAG 361) (SEQ ID NO:9740)
5'- G GAA AGC TGA GAT GGA GGG CGG CAT GGC GGG C-3' (FRAG 362) (SEQ ID NO:9741)
5'- G GAA AGC TGA GAT GGA GGG CGG CAT GGC GGG -3' (FRAG 363) (SEQ ID NO:9742)
5'- G GAA AGC TGA GAT GGA GGG CGG CAT GGC GG-3' (FRAG 364) (SEQ ID NO:9743)
5'- G GAA AGC TGA GAT GGA GGG CGG CAT GGC G-3' (FRAG 365) (SEQ ID NO:9744)
5'- G GAA AGC TGA GAT GGA GGG CGG CAT GGC -3' (FRAG 366) (SEQ ID NO:9745)
5'- G GAA AGC TGA GAT GGA GGG CGG CAT GG -3' (FRAG 367) (SEQ ID NO:9746)
5'- G GAA AGC TGA GAT GGA GGG CGG CAT G -3' (FRAG 368) (SEQ ID NO:9747)
5'- G GAA AGC TGA GAT GGA GGG CGG CAT -3' (FRAG 369) (SEQ ID NO:9748)
5'- G GAA AGC TGA GAT GGA GGG CGG CA-3' (FRAG 370) (SEQ ID NO:9749)
5'- G GAA AGC TGA GAT GGA GGG CGG C-3' (FRAG 371) (SEQ ID NO:9750)
5'- G GAA AGC TGA GAT GGA GGG CGG -3' (FRAG 372) (SEQ ID NO:9751)
5'- G GAA AGC TGA GAT GGA GGG CG -3' (FRAG 373) (SEQ ID NO:9752)
5'- G GAA AGC TGA GAT GGA GGG C -3' (FRAG 374) (SEQ ID NO:9753)

5'- G GAA AGC TGA GAT GGA GGG -3' (FRAG 375) (SEQ ID NO:9754)
5'- G GAA AGC TGA GAT GGA GG -3' (FRAG 376) (SEQ ID NO:9755)
5'- G GAA AGC TGA GAT GGA G -3' (FRAG 377) (SEQ ID NO:9756)
5'- G GAA AGC TGA GAT GGA -3' (FRAG 378) (SEQ ID NO:9757)
5'- G GAA AGC TGA GAT GG -3' (FRAG 379) (SEQ ID NO:9758)
5'- G GAA AGC TGA GAT G -3' (FRAG 380) (SEQ ID NO:9759)
5'- G GAA AGC TGA GAT -3' (FRAG 381) (SEQ ID NO:9760)
5'- G GAA AGC TGA GA-3' (FRAG 382) (SEQ ID NO:9761)
5'- G GAA AGC TGA G-3' (FRAG 383) (SEQ ID NO:9762)
5'- G GAA AGC TGA-3' (FRAG.384) (SEQ ID NO:9763)
5'- GAA AGC TGA GAT GGA GGG CGG CAT GGC GGG CAC AGG CTG GGC-3' (FRAG 385) (SEQ ID NO:9764)
5'- GAA AGC TGA GAT GGA GGG CGG CAT GGC GGG CAC AGG CTG GG-3' (FRAG 386) (SEQ ID NO:9765)
5'- GAA AGC TGA GAT GGA GGG CGG CAT GGC GGG CAC AGG CTG G-3' (FRAG 387) (SEQ ID NO:9766)
5'- GAA AGC TGA GAT GGA GGG CGG CAT GGC GGG CAC AGG CTG -3' (FRAG 388) (SEQ ID NO:9767)
5'- GAA AGC TGA GAT GGA GGG CGG CAT GGC GGG CAC AGG CT-3' (FRAG 389) (SEQ ID NO:9768)
5'- GAA AGC TGA GAT GGA GGG CGG CAT GGC GGG CAC AGG C-3' (FRAG 390) (SEQ ID NO:9769)
5'- GAA AGC TGA GAT GGA GGG CGG CAT GGC GGG CAC AGG -3' (FRAG 391) (SEQ ID NO:9770)
5'- GAA AGC TGA GAT GGA GGG CGG CAT GGC GGG CAC AG-3' (FRAG 392) (SEQ ID NO:9771)
5'- GAA AGC TGA GAT GGA GGG CGG CAT GGC GGG CAC A-3' (FRAG 393) (SEQ ID NO:9772)
5'- GAA AGC TGA GAT GGA GGG CGG CAT GGC GGG CAC-3' (FRAG 394) (SEQ ID NO:9773)
5'- GAA AGC TGA GAT GGA GGG CGG CAT GGC GGG CA-3' (FRAG 395) (SEQ ID NO:9774)
5'- GAA AGC TGA GAT GGA GGG CGG CAT GGC GGG C-3' (FRAG 396) (SEQ ID NO:9775)
5'- GAA AGC TGA GAT GGA GGG CGG CAT GGC GGG -3' (FRAG 397) (SEQ ID NO:9776)
5'- GAA AGC TGA GAT GGA GGG CGG CAT GGC GG-3' (FRAG 398) (SEQ ID NO:9777)
5'- GAA AGC TGA GAT GGA GGG CGG CAT GGC G-3' (FRAG 399) (SEQ ID NO:9778)
5'- GAA AGC TGA GAT GGA GGG CGG CAT GGC -3' (FRAG 400) (SEQ ID NO:9779)
5'- GAA AGC TGA GAT GGA GGG CGG CAT GG -3' (FRAG 401) (SEQ ID NO:9780)
5'- GAA AGC TGA GAT GGA GGG CGG CAT G -3' (FRAG 402) (SEQ ID NO:9781)
5'- GAA AGC TGA GAT GGA GGG CGG CAT -3' (FRAG 403) (SEQ ID NO:9782)
5'- GAA AGC TGA GAT GGA GGG CGG CA-3' (FRAG 404) (SEQ ID NO:9783)
5'- GAA AGC TGA GAT GGA GGG CGG C-3' (FRAG 405) (SEQ ID NO:9784)
5'- GAA AGC TGA GAT GGA GGG CGG -3' (FRAG 406) (SEQ ID NO:9785)
5'- GAA AGC TGA GAT GGA GGG CG -3' (FRAG 407) (SEQ ID NO:9786)
5'- GAA AGC TGA GAT GGA GGG C -3' (FRAG 408) (SEQ ID NO:9787)
5'- GAA AGC TGA GAT GGA GGG -3' (FRAG 409) (SEQ ID NO:9788)
5'- GAA AGC TGA GAT GGA GG -3' (FRAG 410) (SEQ ID NO:9789)
5'- GAA AGC TGA GAT GGA G -3' (FRAG 411) (SEQ ID NO:9790)
5'- GAA AGC TGA GAT GGA -3' (FRAG 412) (SEQ ID NO:9791)
5'- GAA AGC TGA GAT GG -3' (FRAG 413) (SEQ ID NO:9792)
5'- GAA AGC TGA GAT G -3' (FRAG 414) (SEQ ID NO:9793)
5'- GAA AGC TGA GAT -3' (FRAG 415) (SEQ ID NO:9794)
5'- GAA AGC TGA GA-3' (FRAG 416) (SEQ ID NO:9795)
5'- GAA AGC TGA G-3' (FRAG 417) (SEQ ID NO:9796)
5'- AA AGC TGA GAT GGA GGG CGG CAT GGC GGG CAC AGG CTG GGC-3' (FRAG 418) (SEQ ID NO:9797)
5'- AA AGC TGA GAT GGA GGG CGG CAT GGC GGG CAC AGG CTG GG-3' (FRAG 419) (SEQ ID NO:9798)
5'- AA AGC TGA GAT GGA GGG CGG CAT GGC GGG CAC AGG CTG G-3' (FRAG 420) (SEQ ID NO:9799)
5'- AA AGC TGA GAT GGA GGG CGG CAT GGC GGG CAC AGG CTG -3' (FRAG 421) (SEQ ID NO:9800)
5'- AA AGC TGA GAT GGA GGG CGG CAT GGC GGG CAC AGG CT-3' (FRAG 422) (SEQ ID NO:9801)
5'- AA AGC TGA GAT GGA GGG CGG CAT GGC GGG CAC AGG C-3' (FRAG 423) (SEQ ID NO:9802)
5'- AA AGC TGA GAT GGA GGG CGG CAT GGC GGG CAC AGG -3'(FRAG 424) (SEQ ID NO:9803)
5'- AA AGC TGA GAT GGA GGG CGG CAT GGC GGG CAC AG-3' (FRAG 425) (SEQ ID NO:9804)
5'- AA AGC TGA GAT GGA GGG CGG CAT GGC GGG CAC A-3' (FRAG 426) (SEQ ID NO:9805)
5'- AA AGC TGA GAT GGA GGG CGG CAT GGC GGG CAC-3' (FRAG 427) (SEQ ID NO:9806)
5'- AA AGC TGA GAT GGA GGG CGG CAT GGC GGG CA-3' (FRAG 428) (SEQ ID NO:9807)
5'- AA AGC TGA GAT GGA GGG CGG CAT GGC GGG C-3' (FRAG 429) (SEQ ID NO:9808)
5'- AA AGC TGA GAT GGA GGG CGG CAT GGC GGG -3' (FRAG 430) (SEQ ID NO:9809)
5'- AA AGC TGA GAT GGA GGG CGG CAT GGC GG-3' (FRAG 431) (SEQ ID NO:9810)
5'- AA AGC TGA GAT GGA GGG CGG CAT GGC G-3' (FRAG 432) (SEQ ID NO:9811)
5'- AA AGC TGA GAT GGA GGG CGG CAT GGC -3' (FRAG 433) (SEQ ID NO:9812)
5'- AA AGC TGA GAT GGA GGG CGG CAT GG -3' (FRAG 434) (SEQ ID NO:9813)
5'- AA AGC TGA GAT GGA GGG CGG CAT G -3' (FRAG 435) (SEQ ID NO:9814)
5'- AA AGC TGA GAT GGA GGG CGG CAT -3' (FRAG 436) (SEQ ID NO:9815)
5'- AA AGC TGA GAT GGA GGG CGG CA-3' (FRAG 437) (SEQ ID NO:9816)
5'- AA AGC TGA GAT GGA GGG CGG C-3' (FRAG 438) (SEQ ID NO:9817)
5'- AA AGC TGA GAT GGA GGG CGG -3' (FRAG 439) (SEQ ID NO:9818)
5'- AA AGC TGA GAT GGA GGG CG -3' (FRAG 440) (SEQ ID NO:9819)
5'- AA AGC TGA GAT GGA GGG C -3' (FRAG 441) (SEQ ID NO:9820)
5'- AA AGC TGA GAT GGA GGG -3' (FRAG 442) (SEQ ID NO:9821)
5'- AA AGC TGA GAT GGA GG -3' (FRAG 443) (SEQ ID NO:9822)
5'- AA AGC TGA GAT GGA G -3' (FRAG 444) (SEQ ID NO:9823)
5'- AA AGC TGA GAT GGA -3' (FRAG 445) (SEQ ID NO:9824)
5'- AA AGC TGA GAT GG -3' (FRAG 446) (SEQ ID NO:9825)
5'- AA AGC TGA GAT G -3' (FRAG 447) (SEQ ID NO:9826)
5'- AA AGC TGA GAT -3' (FRAG 448) (SEQ ID NO:9827)
5'- AA AGC TGA GA-3' (FRAG 449) (SEQ ID NO:9828)

5'- A AGC TGA GAT GGA GGG CG G CAT GGC GGG CAC AGG CTG GGC-3' (FRAG 450) (SEQ ID NO:9829)
5'- A AGC TGA GAT GGA GGG CGG CAT GGC GGG CAC AGG CTG GG-3' (FRAG 451) (SEQ ID NO:9830)
5'- A AGC TGA GAT GGA GGG CGG CAT GGC GGG CAC AGG CTG G-3' (FRAG 452) (SEQ ID NO:9831)
5'- A AGC TGA GAT GGA GGG CGG CAT GGC GGG CAC AGG CTG -3' (FRAG 453) (SEQ ID NO:9832)
5'- A AGC TGA GAT GGA GGG CGG CAT GGC GGG CAC AGG CT-3' (FRAG 454) (SEQ ID NO:9833)
5'- A AGC TGA GAT GGA GGG CGG CAT GGC GGG CAC AGG C-3' (FRAG 455) (SEQ ID NO:9834)
5'- A AGC TGA GAT GGA GGG CGG CAT GGC GGG CAC AGG -3' (FRAG 456) (SEQ ID NO:9835)
5'- A AGC TGA GAT GGA GGG CGG CAT GGC GGG CAC AG-3' (FRAG 457) (SEQ ID NO:9836)
5'- A AGC TGA GAT GGA GGG CGG CAT GGC GGG CAC A-3' (FRAG 458) (SEQ ID NO:9837)
5'- A AGC TGA GAT GGA GGG CGG CAT GGC GGG CAC-3' (FRAG 459) (SEQ ID NO:9838)
5'- A AGC TGA GAT GGA GGG CGG CAT GGC GGG CA-3' (FRAG 460) (SEQ ID NO:9839)
5'- A AGC TGA GAT GGA GGG CGG CAT GGC GGG C-3' (FRAG 461) (SEQ ID NO:9840)
5'- A AGC TGA GAT GGA GGG CGG CAT GGC GGG -3' (FRAG 462) (SEQ ID NO:9841)
5'- A AGC TGA GAT GGA GGG CGG CAT GGC GG-3' (FRAG 463) (SEQ ID NO:9842)
5'- A AGC TGA GAT GGA GGG CGG CAT GGC G-3' (FRAG 464) (SEQ ID NO:9843)
5'- A AGC TGA GAT GGA GGG CGG CAT GGC -3' (FRAG 465) (SEQ ID NO:9844)
5'- A AGC TGA GAT GGA GGG CGG CAT GG -3' (FRAG 466) (SEQ ID NO:9845)
5'- A AGC TGA GAT GGA GGG CGG CAT G -3' (FRAG 467) (SEQ ID NO:9846)
5'- A AGC TGA GAT GGA GGG CGG CAT -3' (FRAG 468) (SEQ ID NO:9847)
5'- A AGC TGA GAT GGA GGG CGG CA-3' (FRAG 469) (SEQ ID NO:9848)
5'- A AGC TGA GAT GGA GGG CGG C-3' (FRAG 470) (SEQ ID NO:9849)
5'- A AGC TGA GAT GGA GGG CGG -3' (FRAG 471) (SEQ ID NO:9850)
5'- A AGC TGA GAT GGA GGG CG -3' (FRAG 472) (SEQ ID NO:9851)
5'- A AGC TGA GAT GGA GGG C -3' (FRAG 473) (SEQ ID NO:9852)
5'- A AGC TGA GAT GGA GGG -3' (FRAG 474) (SEQ ID NO:9853)
5'- A AGC TGA GAT GGA GG -3' (FRAG 475) (SEQ ID NO:9854)
5'- A AGC TGA GAT GGA G -3' (FRAG 476) (SEQ ID NO:9855)
5'- A AGC TGA GAT GGA -3' (FRAG 477) (SEQ ID NO:9856)
5'- A AGC TGA GAT GG -3' (FRAG 478) (SEQ ID NO:9857)
5'- A AGC TGA GAT G -3' (FRAG 479) (SEQ ID NO:9858)
5'- A AGC TGA GAT -3' (FRAG 480) (SEQ ID NO:9859)
5'- AGC TGA GAT GGA GGG CGG CAT GGC GGG CAC AGG CTG GGC-3' (FRAG 481) (SEQ ID NO:9860)
5'- AGC TGA GAT GGA GGG CGG CAT GGC GGG CAC AGG CTG GG-3' (FRAG 482) (SEQ ID NO:9861)
5'- AGC TGA GAT GGA GGG CGG CAT GGC GGG CAC AGG CTG G-3' (FRAG 483) (SEQ ID NO:9862)
5'- AGC TGA GAT GGA GGG CGG CAT GGC GGG CAC AGG CTG -3' (FRAG 484) (SEQ ID NO:9863)
5'- AGC TGA GAT GGA GGG CGG CAT GGC GGG CAC AGG CT-3' (FRAG 485) (SEQ ID NO:9864)
5'- AGC TGA GAT GGA GGG CGG CAT GGC GGG CAC AGG C-3' (FRAG 486) (SEQ ID NO:9865)
5'- AGC TGA GAT GGA GGG CGG CAT GGC GGG CAC AGG -3' (FRAG 487) (SEQ ID NO:9866)
5'- AGC TGA GAT GGA GGG CGG CAT GGC GGG CAC AG-3' (FRAG 488) (SEQ ID NO:9867)
5'- AGC TGA GAT GGA GGG CGG CAT GGC GGG CAC A-3' (FRAG 489) (SEQ ID NO:9868)
5'- AGC TGA GAT GGA GGG CGG CAT GGC GGG CAC-3' (FRAG 490) (SEQ ID NO:9869)
5'- AGC TGA GAT GGA GGG CGG CAT GGC GGG CA-3' (FRAG 491) (SEQ ID NO:9870)
5'- AGC TGA GAT GGA GGG CGG CAT GGC GGG C-3' (FRAG 492) (SEQ ID NO:9871)
5'- AGC TGA GAT GGA GGG CGG CAT GGC GGG -3' (FRAG 493) (SEQ ID NO:9872)
5'- AGC TGA GAT GGA GGG CGG CAT GGC GG-3' (FRAG 494) (SEQ ID NO:9873)
5'- AGC TGA GAT GGA GGG CGG CAT GGC G-3' (FRAG 495) (SEQ ID NO:9874)
5'- AGC TGA GAT GGA GGG CGG CAT GGC -3' (FRAG 496) (SEQ ID NO:9875)
5'- AGC TGA GAT GGA GGG CGG CAT GG -3' (FRAG 497) (SEQ ID NO:9876)
5'- AGC TGA GAT GGA GGG CGG CAT G -3' (FRAG 498) (SEQ ID NO:9877)
5'- AGC TGA GAT GGA GGG CGG CAT -3' (FRAG 499) (SEQ ID NO:9878)
5'- AGC TGA GAT GGA GGG CGG CA-3' (FRAG 500) (SEQ ID NO:9879)
5'- AGC TGA GAT GGA GGG CGG C-3' (FRAG 501) (SEQ ID NO:9880)
5'- AGC TGA GAT GGA GGG CGG -3' (FRAG 502) (SEQ ID NO:9881)
5'- AGC TGA GAT GGA GGG CG -3' (FRAG 503) (SEQ ID NO:9882)
5'- AGC TGA GAT GGA GGG C -3' (FRAG 504) (SEQ ID NO:9883)
5'- AGC TGA GAT GGA GGG -3' (FRAG 505) (SEQ ID NO:9884)
5'- AGC TGA GAT GGA GG -3' (FRAG 506) (SEQ ID NO:9885)
5'- AGC TGA GAT GGA G -3' (FRAG 507) (SEQ ID NO:9886)
5'- AGC TGA GAT GGA -3' (FRAG 508) (SEQ ID NO:9887)
5'- AGC TGA GAT GG -3' (FRAG 509) (SEQ ID NO:9888)
5'- AGC TGA GAT G -3' (FRAG 510) (SEQ ID NO:9889)
5'- GC TGA GAT GGA GGG CGG CAT GGC GGG CAC AGG CTG GGC-3' (FRAG 511) (SEQ ID NO:9890)
5'- GC TGA GAT GGA GGG CGG CAT GGC GGG CAC AGG CTG GG-3' (FRAG 512) (SEQ ID NO:9891)
5'- GC TGA GAT GGA GGG CGG CAT GGC GGG CAC AGG CTG G-3' (FRAG 513) (SEQ ID NO:9892)
5'- GC TGA GAT GGA GGG CGG CAT GGC GGG CAC AGG CTG -3' (FRAG 514) (SEQ ID NO:9893)
5'- GC TGA GAT GGA GGG CGG CAT GGC GGG CAC AGG CT-3' (FRAG 515) (SEQ ID NO:9894)
5'- GC TGA GAT GGA GGG CGG CAT GGC GGG CAC AGG C-3' (FRAG 516) (SEQ ID NO:9895)
5'- GC TGA GAT GGA GGG CGG CAT GGC GGG CAC AGG -3' (FRAG 517) (SEQ ID NO:9896)
5'- GC TGA GAT GGA GGG CGG CAT GGC GGG CAC AG-3' (FRAG 518) (SEQ ID NO:9897)
5'- GC TGA GAT GGA GGG CGG CAT GGC GGG CAC A-3' (FRAG 519) (SEQ ID NO:9898)
5'- GC TGA GAT GGA GGG CGG CAT GGC GGG CAC-3' (FRAG 520) (SEQ ID NO:9899)
5'- GC TGA GAT GGA GGG CGG CAT GGC GGG CA-3' (FRAG 521) (SEQ ID NO:9900)
5'- GC TGA GAT GGA GGG CGG CAT GGC GGG C-3' (FRAG 522) (SEQ ID NO:9901)
5'- GC TGA GAT GGA GGG CGG CAT GGC GGG -3' (FRAG 523) (SEQ ID NO:9902)
5'- GC TGA GAT GGA GGG CGG CAT GGC GG-3' (FRAG 524) (SEQ ID NO:9903)

5'- GC TGA GAT GGA GGG CGG CAT GGC G-3' (FRAG 525) (SEQ ID NO:9904)
5'- GC TGA GAT GGA GGG CGG CAT GGC -3' (FRAG 526) (SEQ ID NO:9905)
5'- GC TGA GAT GGA GGG CGG CAT GG -3' (FRAG 527) (SEQ ID NO:9906)
5'- GC TGA GAT GGA GGG CGG CAT G -3' (FRAG 528) (SEQ ID NO:9907)
5'- GC TGA GAT GGA GGG CGG CAT -3' (FRAG 529) (SEQ ID NO:9908)
5'- GC TGA GAT GGA GGG CGG CA-3' (FRAG 530) (SEQ ID NO:9909)
5'- GC TGA GAT GGA GGG CGG C-3' (FRAG 531) (SEQ ID NO:9910)
5'- GC TGA GAT GGA GGG CGG -3' (FRAG 532) (SEQ ID NO:9911)
5'- GC TGA GAT GGA GGG CG -3' (FRAG 533) (SEQ ID NO:9912)
5'- GC TGA GAT GGA GGG C -3' (FRAG 534) (SEQ ID NO:9913)
5'- GC TGA GAT GGA GGG -3' (FRAG 535) (SEQ ID NO:9914)
5'- GC TGA GAT GGA GG -3' (FRAG 536) (SEQ ID NO:9915)
5'- GC TGA GAT GGA G -3' (FRAG 537) (SEQ ID NO:9916)
5'- GC TGA GAT GGA -3' (FRAG 538) (SEQ ID NO:9917)
5'- GC TGA GAT GG -3' (FRAG 539) (SEQ ID NO:9918)
5'- C TGA GAT GGA GGG CGG CAT GGC GGG CAC AGG CTG GGC-3' (FRAG 540) (SEQ ID NO:9919)
5'- C TGA GAT GGA GGG CGG CAT GGC GGG CAC AGG CTG GG-3' (FRAG 541) (SEQ ID NO:9920)
5'- C TGA GAT GGA GGG CGG CAT GGC GGG CAC AGG CTG G-3' (FRAG 542) (SEQ ID NO:9921)
5'- C TGA GAT GGA GGG CGG CAT GGC GGG CAC AGG CTG -3' (FRAG 543) (SEQ ID NO:9922)
5'- C TGA GAT GGA GGG CGG CAT GGC GGG CAC AGG CT-3' (FRAG 544) (SEQ ID NO:9923)
5'- C TGA GAT GGA GGG CGG CAT GGC GGG CAC AGG C-3' (FRAG 545) (SEQ ID NO:9924)
5'- C TGA GAT GGA GGG CGG CAT GGC GGG CAC AGG -3' (FRAG 546) (SEQ ID NO:9925)
5'- C TGA GAT GGA GGG CGG CAT GGC GGG CAC AG-3' (FRAG 547) (SEQ ID NO:9926)
5'- C TGA GAT GGA GGG CGG CAT GGC GGG CAC A-3' (FRAG 548) (SEQ ID NO:9927)
5'- C TGA GAT GGA GGG CGG CAT GGC GGG CAC-3' (FRAG 549) (SEQ ID NO:9928)
5'- C TGA GAT GGA GGG CGG CAT GGC GGG CA-3' (FRAG 550) (SEQ ID NO:9929)
5'- C TGA GAT GGA GGG CGG CAT GGC GGG C-3' (FRAG 551) (SEQ ID NO:9930)
5'- C TGA GAT GGA GGG CGG CAT GGC GGG -3' (FRAG 552) (SEQ ID NO:9931)
5'- C TGA GAT GGA GGG CGG CAT GGC GG-3' (FRAG 553) (SEQ ID NO:9932)
5'- C TGA GAT GGA GGG CGG CAT GGC G-3' (FRAG 554) (SEQ ID NO:9933)
5'- C TGA GAT GGA GGG CGG CAT GGC -3' (FRAG 555) (SEQ ID NO:9934)
5'- C TGA GAT GGA GGG CGG CAT GG -3' (FRAG 556) (SEQ ID NO:9935)
5'- C TGA GAT GGA GGG CGG CAT G -3' (FRAG 557) (SEQ ID NO:9936)
5'- C TGA GAT GGA GGG CGG CAT -3' (FRAG 558) (SEQ ID NO:9937)
5'- C TGA GAT GGA GGG CGG CA-3' (FRAG 559) (SEQ ID NO:9938)
5'- C TGA GAT GGA GGG CGG C-3' (FRAG 560) (SEQ ID NO:9939)
5'- C TGA GAT GGA GGG CGG -3' (FRAG 561) (SEQ ID NO:9940)
5'- C TGA GAT GGA GGG CG -3' (FRAG 562) (SEQ ID NO:9941)
5'- C TGA GAT GGA GGG C -3' (FRAG 563) (SEQ ID NO:9942)
5'- C TGA GAT GGA GGG -3' (FRAG 564) (SEQ ID NO:9943)
5'- C TGA GAT GGA GG -3' (FRAG 565) (SEQ ID NO:9944)
5'- C TGA GAT GGA G -3' (FRAG 566) (SEQ ID NO:9945)
5'- C TGA GAT GGA -3' (FRAG 567) (SEQ ID NO:9946)
5'- TGA GAT GGA GGG CGG CAT GGC GGG CAC AGG CTG GGC-3' (FRAG 568) (SEQ ID NO:9947)
5'- TGA GAT GGA GGG CGG CAT GGC GGG CAC AGG CTG GG-3' (FRAG 569) (SEQ ID NO:9948)
5'- TGA GAT GGA GGG CGG CAT GGC GGG CAC AGG CTG G-3' (FRAG 570) (SEQ ID NO:9949)
5'- TGA GAT GGA GGG CGG CAT GGC GGG CAC AGG CTG -3' (FRAG 571) (SEQ ID NO:9950)
5'- TGA GAT GGA GGG CGG CAT GGC GGG CAC AGG CT-3' (FRAG 572) (SEQ ID NO:9951)
5'- TGA GAT GGA GGG CGG CAT GGC GGG CAC AGG C-3' (FRAG 573) (SEQ ID NO:9952)
5'- TGA GAT GGA GGG CGG CAT GGC GGG CAC AGG -3' (FRAG 574) (SEQ ID NO:9953)
5'- TGA GAT GGA GGG CGG CAT GGC GGG CAC AG-3' (FRAG 575) (SEQ ID NO:9954)
5'- TGA GAT GGA GGG CGG CAT GGC GGG CAC A-3' (FRAG 576) (SEQ ID NO:9955)
5'- TGA GAT GGA GGG CGG CAT GGC GGG CAC-3' (FRAG 577) (SEQ ID NO:9956)
5'- TGA GAT GGA GGG CGG CAT GGC GGG CA-3' (FRAG 578) (SEQ ID NO:9957)
5'- TGA GAT GGA GGG CGG CAT GGC GGG C-3' (FRAG 579) (SEQ ID NO:9958)
5'- TGA GAT GGA GGG CGG CAT GGC GGG -3' (FRAG 580) (SEQ ID NO:9959)
5'- TGA GAT GGA GGG CGG CAT GGC GG-3' (FRAG 581) (SEQ ID NO:9960)
5'- TGA GAT GGA GGG CGG CAT GGC G-3' (FRAG 582) (SEQ ID NO:9961)
5'- TGA GAT GGA GGG CGG CAT GGC -3' (FRAG 583) (SEQ ID NO:9962)
5'- TGA GAT GGA GGG CGG CAT GG -3' (FRAG 584) (SEQ ID NO:9963)
5'- TGA GAT GGA GGG CGG CAT G -3' (FRAG 585) (SEQ ID NO:9964)
5'- TGA GAT GGA GGG CGG CAT -3' (FRAG 586) (SEQ ID NO:9965)
5'- TGA GAT GGA GGG CGG CA-3' (FRAG 587) (SEQ ID NO:9966)
5'- TGA GAT GGA GGG CGG C-3' (FRAG 588) (SEQ ID NO:9967)
5'- TGA GAT GGA GGG CGG -3' (FRAG 589) (SEQ ID NO:9968)
5'- TGA GAT GGA GGG CG -3' (FRAG 590) (SEQ ID NO:9969)
5'- TGA GAT GGA GGG C -3' (FRAG 591) (SEQ ID NO:9970)
5'- TGA GAT GGA GGG -3' (FRAG 592) (SEQ ID NO:9971)
5'- TGA GAT GGA GG -3' (FRAG 593) (SEQ ID NO:9972)
5'- TGA GAT GGA G -3' (FRAG 594) (SEQ ID NO:9973)
5'- GA GAT GGA GGG CGG CAT GGC GGG CAC AGG CTG GGC-3' (FRAG 595) (SEQ ID NO:9974)
5'- GA GAT GGA GGG CGG CAT GGC GGG CAC AGG CTG GG-3' (FRAG 596) (SEQ ID NO:9975)
5'- GA GAT GGA GGG CGG CAT GGC GGG CAC AGG CTG,G-3' (FRAG 597) (SEQ ID NO:9976)
5'- GA GAT GGA GGG CGG CAT GGC GGG CAC AGG CTG -3' (FRAG 598) (SEQ ID NO:9977)
5'- GA GAT GGA GGG CGG CAT GGC GGG CAC AGG CT-3' (FRAG 599) (SEQ ID NO:9978)

5'- GA GAT GGA GGG CGG CAT GGC GGG CAC AGG C-3' (FRAG 600) (SEQ ID NO:9979)
5'- GA GAT GGA GGG CGG CAT GGC GGG CAC AGG -3' (FRAG 601) (SEQ ID NO:9980)
5'- GA GAT GGA GGG CGG CAT GGC GGG CAC AG-3' (FRAG 602) (SEQ ID NO:9981)
5'- GA GAT GGA GGG CGG CAT GGC GGG CAC A-3' (FRAG 603) (SEQ ID NO:9982)
5'- GA GAT GGA GGG CGG CAT GGC GGG CAC-3' (FRAG 604) (SEQ ID NO:9983)
5'- GA GAT GGA GGG CGG CAT GGC GGG CA-3' (FRAG 605) (SEQ ID NO:9984)
5'- GA GAT GGA GGG CGG CAT GGC GGG C-3' (FRAG 606) (SEQ ID NO:9985)
5'- GA GAT GGA GGG CGG CAT GGC GGG -3' (FRAG 607) (SEQ ID NO:9986)
5'- GA GAT GGA GGG CGG CAT GGC GG-3' (FRAG 608) (SEQ ID NO:9987)
5'- GA GAT GGA GGG CGG CAT GGC G-3' (FRAG 609) (SEQ ID NO:9988)
5'- GA GAT GGA GGG CGG CAT GGC -3' (FRAG 610) (SEQ ID NO:9989)
5'- GA GAT GGA GGG CGG CAT GG -3' (FRAG 611) (SEQ ID NO:9990)
5'- GA GAT GGA GGG CGG CAT G -3' (FRAG 612) (SEQ ID NO:9991)
5'- GA GAT GGA GGG CGG CAT -3' (FRAG 613) (SEQ ID NO:9992)
5'- GA GAT GGA GGG CGG CA-3' (FRAG 614) (SEQ ID NO:9993)
5'- GA GAT GGA GGG CGG C-3' (FRAG 615) (SEQ ID NO:9994)
5'- GA GAT GGA GGG CGG -3' (FRAG 616) (SEQ ID NO:9995)
5'- GA GAT GGA GGG CG -3' (FRAG 617) (SEQ ID NO:9996)
5'- GA GAT GGA GGG C -3' (FRAG 618) (SEQ ID NO:9997)
5'- GA GAT GGA GGG -3' (FRAG 619) (SEQ ID NO:9998)
5'- GA GAT GGA GG -3' (FRAG 620) (SEQ ID NO:9999)
5'- A GAT GGA GGG CGG CAT GGC GGG CAC AGG CTG GGC-3' (FRAG 621) (SEQ ID NO:10000)
5'- A GAT GGA GGG CGG CAT GGC GGG CAC AGG CTG GG-3' (FRAG 622) (SEQ ID NO:10001)
5'- A GAT GGA GGG CGG CAT GGC GGG CAC AGG CTG G-3' (FRAG 623) (SEQ ID NO:10002)
5'- A GAT GGA GGG CGG CAT GGC GGG CAC AGG CTG -3' (FRAG 624) (SEQ ID NO:10003)
5'- A GAT GGA GGG CGG CAT GGC GGG CAC AGG CT-3' (FRAG 625) (SEQ ID NO:10004)
5'- A GAT GGA GGG CGG CAT GGC GGG CAC AGG C-3' (FRAG 626) (SEQ ID NO:10005)
5'- A GAT GGA GGG CGG CAT GGC GGG CAC AGG -3' (FRAG 627) (SEQ ID NO:10006)
5'- A GAT GGA GGG CGG CAT GGC GGG CAC AG-3' (FRAG 628) (SEQ ID NO:10007)
5'- A GAT GGA GGG CGG CAT GGC GGG CAC A-3' (FRAG 629) (SEQ ID NO:10008)
5'- A GAT GGA GGG CGG CAT GGC GGG CAC-3' (FRAG 630) (SEQ ID NO:10009)
5'- A GAT GGA GGG CGG CAT GGC GGG CA-3' (FRAG 631) (SEQ ID NO:10010)
5'- A GAT GGA GGG CGG CAT GGC GGG C-3' (FRAG 632) (SEQ ID NO:10011)
5'- A GAT GGA GGG CGG CAT GGC GGG -3' (FRAG 633) (SEQ ID NO:10012)
5'- A GAT GGA GGG CGG CAT GGC GG-3' (FRAG 634) (SEQ ID NO:10013)
5'- A GAT GGA GGG CGG CAT GGC G-3' (FRAG 635) (SEQ ID NO:10014)
5'- A GAT GGA GGG CGG CAT GGC -3' (FRAG 636) (SEQ ID NO:10015)
5'- A GAT GGA GGG CGG CAT GG -3' (FRAG 637) (SEQ ID NO:10016)
5'- A GAT GGA GGG CGG CAT G -3' (FRAG 638) (SEQ ID NO:10017)
5'- A GAT GGA GGG CGG CAT -3' (FRAG 639) (SEQ ID NO:10018)
5'- A GAT GGA GGG CGG CA-3' (FRAG 640) (SEQ ID NO:10019)
5'- A GAT GGA GGG CGG C-3' (FRAG 641) (SEQ ID NO:10020)
5'- A GAT GGA GGG CGG -3' (FRAG 642) (SEQ ID NO:10021)
5'- A GAT GGA GGG CG -3' (FRAG 643) (SEQ ID NO:10022)
5'- A GAT GGA GGG C -3' (FRAG 644) (SEQ ID NO:10023)
5'- A GAT GGA GGG -3' (FRAG 645) (SEQ ID NO:10024)
5'- GAT GGA GGG CGG CAT GGC GGG CAC AGG CTG GGC-3' (FRAG 646) (SEQ ID NO:10025)
5'- GAT GGA GGG CGG CAT GGC GGG CAC AGG CTG GG-3' (FRAG 647) (SEQ ID NO:10026)
5'- GAT GGA GGG CGG CAT GGC GGG CAC AGG CTG G-3' (FRAG 648) (SEQ ID NO:10027)
5'- GAT GGA GGG CGG CAT GGC GGG CAC AGG CTG -3' (FRAG 6) (SEQ ID NO:10028)
5'- GAT GGA GGG CGG CAT GGC GGG CAC AGG CT-3' (FRAG 650) (SEQ ID NO:10029)
5'- GAT GGA GGG CGG CAT GGC GGG CAC AGG C-3' (FRAG 651) (SEQ ID NO:10030)
5'- GAT GGA GGG CGG CAT GGC GGG CAC AGG -3' (FRAG 652) (SEQ ID NO:10031)
5'- GAT GGA GGG CGG CAT GGC GGG CAC AG-3' (FRAG 653) (SEQ ID NO:10032)
5'- GAT GGA GGG CGG CAT GGC GGG CAC A-3' (FRAG 654) (SEQ ID NO:10033)
5'- GAT GGA GGG CGG CAT GGC GGG CAC-3' (FRAG 655) (SEQ ID NO:10034)
5'- GAT GGA GGG CGG CAT GGC GGG CA-3' (FRAG 656) (SEQ ID NO:10035)
5'- GAT GGA GGG CGG CAT GGC GGG C-3' (FRAG 657) (SEQ ID NO:10036)
5'- GAT GGA GGG CGG CAT GGC GGG -3' (FRAG 658) (SEQ ID NO:10037)
5'- GAT GGA GGG CGG CAT GGC GG-3' (FRAG 659) (SEQ ID NO:10038)
5'- GAT GGA GGG CGG CAT GGC G-3' (FRAG 660) (SEQ ID NO:10039)
5'- GAT GGA GGG CGG CAT GGC -3' (FRAG 661) (SEQ ID NO:10040)
5'- GAT GGA GGG CGG CAT GG -3' (FRAG 662) (SEQ ID NO:10041)
5'- GAT GGA GGG CGG CAT G -3' (FRAG 663) (SEQ ID NO:10042)
5'- GAT GGA GGG CGG CAT -3' (FRAG 664) (SEQ ID NO:10043)
5'- GAT GGA GGG CGG CA-3' (FRAG 665) (SEQ ID NO:10044)
5'- GAT GGA GGG CGG C-3' (FRAG 666) (SEQ ID NO:10045)
5'- GAT GGA GGG CGG -3' (FRAG 667) (SEQ ID NO:10046)
5'- GAT GGA GGG CG -3' (FRAG 668) (SEQ ID NO:10047)
5'- GAT GGA GGG C -3' (FRAG 669) (SEQ ID NO:10048)
5'- AT GGA GGG CGG CAT GGC GGG CAC AGG CTG GGC-3' (FRAG 670) (SEQ ID NO:10049)
5'- AT GGA GGG CGG CAT GGC GGG CAC AGG CTG GG-3' (FRAG 671) (SEQ ID NO:10050)
5'- AT GGA GGG CGG CAT GGC GGG CAC AGG CTG G-3' (FRAG 672) (SEQ ID NO:10051)
5'- AT GGA GGG CGG CAT GGC GGG CAC AGG CTG -3' (FRAG 673) (SEQ ID NO:10052)
5'- AT GGA GGG CGG CAT GGC GGG CAC AGG CT-3' (FRAG 674) (SEQ ID NO:10053)

5'- AT GGA GGG CGG CAT GGC GGG CAC AGG C-3' (FRAG 675) (SEQ ID NO:10054)
5'- AT GGA GGG CGG CAT GGC GGG CAC AGG -3' (FRAG 676) (SEQ ID NO:10055)
5'- AT GGA GGG CGG CAT GGC GGG CAC AG-3' (FRAG 677) (SEQ ID NO:10056)
5'- AT GGA GGG CGG CAT GGC GGG CAC A-3' (FRAG 678) (SEQ ID NO:10057)
5'- AT GGA GGG CGG CAT GGC GGG CAC-3' (FRAG 679) (SEQ ID NO:10058)
5'- AT GGA GGG CGG CAT GGC GGG CA-3' (FRAG 680) (SEQ ID NO:10059)
5'- AT GGA GGG CGG CAT GGC GGG C-3' (FRAG 681) (SEQ ID NO:10060)
5'- AT GGA GGG CGG CAT GGC GGG -3' (FRAG 682) (SEQ ID NO:10061)
5'- AT GGA GGG CGG CAT GGC GG-3' (FRAG 683) (SEQ ID NO:10062)
5'- AT GGA GGG CGG CAT GGC G-3' (FRAG 684) (SEQ ID NO:10063)
5'- AT GGA GGG CGG CAT GGC -3' (FRAG 685) (SEQ ID NO:10064)
5'- AT GGA GGG CGG CAT GG -3' (FRAG 686) (SEQ ID NO:10065)
5'- AT GGA GGG CGG CAT G -3' (FRAG 687) (SEQ ID NO:10066)
5'- AT GGA GGG CGG CAT -3' (FRAG 688) (SEQ ID NO:10067)
5'- AT GGA GGG CGG CA-3' (FRAG 689) (SEQ ID NO:10068)
5'- AT GGA GGG CGG C-3' (FRAG 690) (SEQ ID NO:10069)
5'- AT GGA GGG CGG -3' (FRAG 691) (SEQ ID NO:10070)
5'- AT GGA GGG CG -3' (FRAG 692) (SEQ ID NO:10071)
5'- T GGA GGG CGG CAT GGC GGG CAC AGG CTG GGC-3' (FRAG 693) (SEQ ID NO:10072)
5'- T GGA GGG CGG CAT GGC GGG CAC AGG CTG GG-3' (FRAG 694) (SEQ ID NO:10073)
5'- T GGA GGG CGG CAT GGC GGG CAC AGG CTG G-3' (FRAG 695) (SEQ ID NO:10074)
5'- T GGA GGG CGG CAT GGC GGG CAC AGG CTG -3' (FRAG 696) (SEQ ID NO:10075)
5'- T GGA GGG CGG CAT GGC GGG CAC AGG CT-3' (FRAG 697) (SEQ ID NO:10076)
5'- T GGA GGG CGG CAT GGC GGG CAC AGG C-3' (FRAG 698) (SEQ ID NO:10077)
5'- T GGA GGG CGG CAT GGC GGG CAC AGG -3' (FRAG 699) (SEQ ID NO:10078)
5'- T GGA GGG CGG CAT GGC GGG CAC AG-3' (FRAG 700) (SEQ ID NO:10079)
5'- T GGA GGG CGG CAT GGC GGG CAC A-3' (FRAG 701) (SEQ ID NO:10080)
5'- T GGA GGG CGG CAT GGC GGG CAC-3' (FRAG 702) (SEQ ID NO:10081)
5'- T GGA GGG CGG CAT GGC GGG CA-3' (FRAG 703) (SEQ ID NO:10082)
5'- T GGA GGG CGG CAT GGC GGG C-3' (FRAG 704) (SEQ ID NO:10083)
5'- T GGA GGG CGG CAT GGC GGG -3' (FRAG 705) (SEQ ID NO:10084)
5'- T GGA GGG CGG CAT GGC GG-3' (FRAG 706) (SEQ ID NO:10085)
5'- T GGA GGG CGG CAT GGC G-3' (FRAG 707) (SEQ ID NO:10086)
5'- T GGA GGG CGG CAT GGC -3' (FRAG 708) (SEQ ID NO:10087)
5'- T GGA GGG CGG CAT GG -3' (FRAG 709) (SEQ ID NO:10088)
5'- T GGA GGG CGG CAT G -3' (FRAG 710) (SEQ ID NO:10089)
5'- T GGA GGG CGG CAT -3' (FRAG 711) (SEQ ID NO:10090)
5'- T GGA GGG CGG CA-3' (FRAG 712) (SEQ ID NO:10091)
5'- T GGA GGG CGG C-3' (FRAG 713) (SEQ ID NO:10092)
5'- T GGA GGG CGG -3' (FRAG 714) (SEQ ID NO:10093)
5'- GGA GGG CGG CAT GGC GGG CAC AGG CTG GGC-3' (FRAG 715) (SEQ ID NO:10094)
5'- GGA GGG CGG CAT GGC GGG CAC AGG CTG GG-3' (FRAG 716) (SEQ ID NO:10095)
5'- GGA GGG CGG CAT GGC GGG CAC AGG CTG G-3' (FRAG 717) (SEQ ID NO:10096)
5'- GGA GGG CGG CAT GGC GGG CAC AGG CTG -3' (FRAG 718) (SEQ ID NO:10097)
5'- GGA GGG CGG CAT GGC GGG CAC AGG CT-3' (FRAG 719) (SEQ ID NO:10098)
5'- GGA GGG CGG CAT GGC GGG CAC AGG C-3' (FRAG 720) (SEQ ID NO:10099)
5'- GGA GGG CGG CAT GGC GGG CAC AGG -3' (FRAG 721) (SEQ ID NO:10100)
5'- GGA GGG CGG CAT GGC GGG CAC AG-3' (FRAG 722) (SEQ ID NO:10101)
5'- GGA GGG CGG CAT GGC GGG CAC A-3' (FRAG 723) (SEQ ID NO:10102)
5'- GGA GGG CGG CAT GGC GGG CAC-3' (FRAG 724) (SEQ ID NO:10103)
5'- GGA GGG CGG CAT GGC GGG CA-3' (FRAG 725) (SEQ ID NO:10104)
5'- GGA GGG CGG CAT GGC GGG C-3' (FRAG 726) (SEQ ID NO:10105)
5'- GGA GGG CGG CAT GGC GGG -3' (FRAG 727) (SEQ ID NO:10106)
5'- GGA GGG CGG CAT GGC GG-3' (FRAG 728) (SEQ ID NO:10107)
5'- GGA GGG CGG CAT GGC G-3' (FRAG 729) (SEQ ID NO:10108)
5'- GGA GGG CGG CAT GGC -3' (FRAG 730) (SEQ ID NO:10109)
5'- GGA GGG CGG CAT GG -3' (FRAG 731) (SEQ ID NO:10110)
5'- GGA GGG CGG CAT G -3' (FRAG 732) (SEQ ID NO:10111)
5'- GGA GGG CGG CAT -3' (FRAG 733) (SEQ ID NO:10112)
5'- GGA GGG CGG CA-3' (FRAG 734) (SEQ ID NO:10113)
5'- GGA GGG CGG C-3' (FRAG 735) (SEQ ID NO:10114)
5'- GA GGG CGG CAT GGC GGG CAC AGG CTG GGC-3' (FRAG 736) (SEQ ID NO:10115)
5'- GA GGG CGG CAT GGC GGG CAC AGG CTG GG-3' (FRAG 737) (SEQ ID NO:10116)
5'- GA GGG CGG CAT GGC GGG CAC AGG CTG G-3' (FRAG 738) (SEQ ID NO:10117)
5'- GA GGG CGG CAT GGC GGG CAC AGG CTG -3' (FRAG 739) (SEQ ID NO:10118)
5'- GA GGG CGG CAT GGC GGG CAC AGG CT-3' (FRAG 740) (SEQ ID NO:10119)
5'- GA GGG CGG CAT GGC GGG CAC AGG C-3' (FRAG 741) (SEQ ID NO:10120)
5'- GA GGG CGG CAT GGC GGG CAC AGG -3' (FRAG 742) (SEQ ID NO:10121)
5'- GA GGG CGG CAT GGC GGG CAC AG-3' (FRAG 743) (SEQ ID NO:10122)
5'- GA GGG CGG CAT GGC GGG CAC A-3' (FRAG 744) (SEQ ID NO:10123)
5'- GA GGG CGG CAT GGC GGG CAC-3' (FRAG 745) (SEQ ID NO:10124)
5'- GA GGG CGG CAT GGC GGG CA-3' (FRAG 746) (SEQ ID NO:10125)
5'- GA GGG CGG CAT GGC GGG C-3' (FRAG 747) (SEQ ID NO:10126)
5'- GA GGG CGG CAT GGC GGG -3' (FRAG 748) (SEQ ID NO:10127)
5'- GA GGG CGG CAT GGC GG-3' (FRAG 749) (SEQ ID NO:10128)

5'- GA GGG CGG CAT GGC G-3' (FRAG 750) (SEQ ID NO:10129)
5'- GA GGG CGG CAT GGC -3' (FRAG 751) (SEQ ID NO:10130)
5'- GA GGG CGG CAT GG -3' (FRAG 752) (SEQ ID NO:10131)
5'- GA GGG CGG CAT G -3' (FRAG 753) (SEQ ID NO:10132)
5'- GA GGG CGG CAT -3' (FRAG 754) (SEQ ID NO:10133)
5'- GA GGG CGG CA-3' (FRAG 755) (SEQ ID NO:10134)
5'- A GGG CGG CAT GGC GGG CAC AGG CTG GGC-3' (FRAG 756) (SEQ ID NO:10135)
5'- A GGG CGG CAT GGC GGG CAC AGG CTG GG-3' (FRAG 757) (SEQ ID NO:10136)
5'- A GGG CGG CAT GGC GGG CAC AGG CTG G-3' (FRAG 758) (SEQ ID NO:10137)
5'- A GGG CGG CAT GGC GGG CAC AGG CTG -3' (FRAG 759) (SEQ ID NO:10138)
5'- A GGG CGG CAT GGC GGG CAC AGG CT-3' (FRAG 760) (SEQ ID NO:10139)
5'- A GGG CGG CAT GGC GGG CAC AGG C-3' (FRAG 761) (SEQ ID NO:10140)
5'- A GGG CGG CAT GGC GGG CAC AGG -3' (FRAG 762) (SEQ ID NO:10141)
5'- A GGG CGG CAT GGC GGG CAC AG-3' (FRAG 763) (SEQ ID NO:10142)
5'- A GGG CGG CAT GGC GGG CAC A-3' (FRAG 764) (SEQ ID NO:10143)
5'- A GGG CGG CAT GGC GGG CAC-3' (FRAG 765) (SEQ ID NO:10144)
5'- A GGG CGG CAT GGC GGG CA-3' (FRAG 766) (SEQ ID NO:10145)
5'- A GGG CGG CAT GGC GGG C-3' (FRAG 767) (SEQ ID NO:10146)
5'- A GGG CGG CAT GGC GGG -3' (FRAG 768) (SEQ ID NO:10147)
5'- A GGG CGG CAT GGC GG-3' (FRAG 769) (SEQ ID NO:10148)
5'- A GGG CGG CAT GGC G-3' (FRAG 770) (SEQ ID NO:10149)
5'- A GGG CGG CAT GGC -3' (FRAG 771) (SEQ ID NO:10150)
5'- A GGG CGG CAT GG -3' (FRAG 772) (SEQ ID NO:10151)
5'- A GGG CGG CAT G -3' (FRAG 773) (SEQ ID NO:10152)
5'- A GGG CGG CAT -3' (FRAG 774) (SEQ ID NO:10153)
5'- GGG CGG CAT GGC GGG CAC AGG CTG GGC-3' (FRAG 775) (SEQ ID NO:10154)
5'- GGG CGG CAT GGC GGG CAC AGG CTG GG-3' (FRAG 776) (SEQ ID NO:10155)
5'- GGG CGG CAT GGC GGG CAC AGG CTG G-3' (FRAG 777) (SEQ ID NO:10156)
5'- GGG CGG CAT GGC GGG CAC AGG CTG -3' (FRAG 778) (SEQ ID NO:10157)
5'- GGG CGG CAT GGC GGG CAC AGG CT-3' (FRAG 779) (SEQ ID NO:10158)
5'- GGG CGG CAT GGC GGG CAC AGG C-3' (FRAG 780) (SEQ ID NO:10159)
5'- GGG CGG CAT GGC GGG CAC AGG -3' (FRAG 781) (SEQ ID NO:10160)
5'- GGG CGG CAT GGC GGG CAC AG-3' (FRAG 782) (SEQ ID NO:10161)
5'- GGG CGG CAT GGC GGG CAC A-3' (FRAG 783) (SEQ ID NO:10162)
5'- GGG CGG CAT GGC GGG CAC-3' (FRAG 784) (SEQ ID NO:10163)
5'- GGG CGG CAT GGC GGG CA-3' (FRAG 785) (SEQ ID NO:10164)
5'- GGG CGG CAT GGC GGG C-3' (FRAG 786) (SEQ ID NO:10165)
5'- GGG CGG CAT GGC GGG -3' (FRAG 787) (SEQ ID NO:10166)
5'- GGG CGG CAT GGC GG-3' (FRAG 788) (SEQ ID NO:10167)
5'- GGG CGG CAT GGC G-3' (FRAG 789) (SEQ ID NO:10168)
5'- GGG CGG CAT GGC -3' (FRAG 790) (SEQ ID NO:10169)
5'- GGG CGG CAT GG -3' (FRAG 791) (SEQ ID NO:10170)
5'- GGG CGG CAT G -3' (FRAG 792) (SEQ ID NO:10171)
5'- GG CGG CAT GGC GGG CAC AG G CTG GGC-3' (FRAG 793) (SEQ ID NO:10172)
5'- GG CGG CAT GGC GGG CAC AGG CTG GG-3' (FRAG 794) (SEQ ID NO:10173)
5'- GG CGG CAT GGC GGG CAC AGG CTG G-3' (FRAG 795) (SEQ ID NO:10174)
5'- GG CGG CAT GGC GGG CAC AGG CTG -3' (FRAG 796) (SEQ ID NO:10175)
5'- GG CGG CAT GGC GGG CAC AGG CT-3' (FRAG 797) (SEQ ID NO:10176)
5'- GG CGG CAT GGC GGG CAC AGG C-3' (FRAG 798) (SEQ ID NO:10177)
5'- GG CGG CAT GGC GGG CAC AGG -3' (FRAG 799) (SEQ ID NO:10178)
5'- GG CGG CAT GGC GGG CAC AG-3' (FRAG 800) (SEQ ID NO:10179)
5'- GG CGG CAT GGC GGG CAC A-3' (FRAG 801) (SEQ ID NO:10180)
5'- GG CGG CAT GGC GGG CAC-3' (FRAG 802) (SEQ ID NO:10181)
5'- GG CGG CAT GGC GGG CA-3' (FRAG 803) (SEQ ID NO:10182)
5'- GG CGG CAT GGC GGG C-3' (FRAG 804) (SEQ ID NO:10183)
5'- GG CGG CAT GGC GGG -3' (FRAG 805) (SEQ ID NO:10184)
5'- GG CGG CAT GGC GG-3' (FRAG 806) (SEQ ID NO:10185)
5'- GG CGG CAT GGC G-3' (FRAG 807) (SEQ ID NO:10186)
5'- GG CGG CAT GGC -3' (FRAG 808) (SEQ ID NO:10187)
5'- GG CGG CAT GG -3' (FRAG 809) (SEQ ID NO:10188)
5'- G CGG CAT GGC GGG CAC AGG CTG GGC-3' (FRAG 810) (SEQ ID NO:10189)
5'- G CGG CAT GGC GGG CAC AGG CTG GG-3' (FRAG 811) (SEQ ID NO:10190)
5'- G CGG CAT GGC GGG CAC AGG CTG G-3' (FRAG 812) (SEQ ID NO:10191)
5'- G CGG CAT GGC GGG CAC AGG CTG -3' (FRAG 813) (SEQ ID NO:10192)
5'- G CGG CAT GGC GGG CAC AGG CT-3' (FRAG 814) (SEQ ID NO:10193)
5'- G CGG CAT GGC GGG CAC AGG C-3' (FRAG 815) (SEQ ID NO:10194)
5'- G CGG CAT GGC GGG CAC AGG -3' (FRAG 816) (SEQ ID NO:10195)
5'- G CGG CAT GGC GGG CAC AG-3' (FRAG 817) (SEQ ID NO:10196)
5'- G CGG CAT GGC GGG CAC A-3' (FRAG 818) (SEQ ID NO:10197)
5'- G CGG CAT GGC GGG CAC-3' (FRAG 819) (SEQ ID NO:10198)
5'- G CGG CAT GGC GGG CA-3' (FRAG 820) (SEQ ID NO:10199)
5'- G CGG CAT GGC GGG C-3' (FRAG 821) (SEQ ID NO:10200)
5'- G CGG CAT GGC GGG -3' (FRAG 822) (SEQ ID NO:10201)
5'- G CGG CAT GGC GG-3' (FRAG 823) (SEQ ID NO:10202)
5'- G CGG CAT GGC G-3' (FRAG 824) (SEQ ID NO:10203)

5'- G CGG CAT GGC -3' (FRAG 825) (SEQ ID NO:10204)
5'- CGG CAT GGC GGG CAC AGG CTG GGC-3' (FRAG 826) (SEQ ID NO:10205)
5'- CGG CAT GGC GGG CAC AGG CTG GG-3' (FRAG 827) (SEQ ID NO:10206)
5'- CGG CAT GGC GGG CAC AGG CTG G-3' (FRAG 828) (SEQ ID NO:10207)
5'- CGG CAT GGC GGG CAC AGG CTG -3' (FRAG 829) (SEQ ID NO:10208)
5'- CGG CAT GGC GGG CAC AGG CT-3' (FRAG 830) (SEQ ID NO:10209)
5'- CGG CAT GGC GGG CAC AGG C-3' (FRAG 831) (SEQ ID NO:10210)
5'- CGG CAT GGC GGG CAC AGG -3' (FRAG 832) (SEQ ID NO:10211)
5'- CGG CAT GGC GGG CAC AG-3' (FRAG 833) (SEQ ID NO:10212)
5'- CGG CAT GGC GGG CAC A-3' (FRAG 834) (SEQ ID NO:10213)
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5'- CGG CAT GGC GGG C-3' (FRAG 837) (SEQ ID NO:10216)
5'- CGG CAT GGC GGG -3' (FRAG 838) (SEQ ID NO:10217)
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5'- CGG CAT GGC G-3' (FRAG 840) (SEQ ID NO:10219)
5'- GG CAT GGC GGG CAC AGG C TG GGC-3' (FRAG 841) (SEQ ID NO:10220)
5'- GG CAT GGC GGG CAC AGG CTG GG-3' (FRAG 842) (SEQ ID NO:10221)
5'- GG CAT GGC GGG CAC AGG CTG G-3' (FRAG 843) (SEQ ID NO:10222)
5'- GG CAT GGC GGG CAC AGG CTG -3' (FRAG 844) (SEQ ID NO:10223)
5'- GG CAT GGC GGG CAC AGG CT-3' (FRAG 845) (SEQ ID NO:10224)
5'- GG CAT GGC GGG CAC AGG C-3' (FRAG 846) (SEQ ID NO:10225)
5'- GG CAT GGC GGG CAC AGG -3' (FRAG 847) (SEQ ID NO:10226)
5'- GG CAT GGC GGG CAC AG-3' (FRAG 848) (SEQ ID NO:10227)
5'- GG CAT GGC GGG CAC A-3' (FRAG 849) (SEQ ID NO:10228)
5'- GG CAT GGC GGG CAC-3' (FRAG 850) (SEQ ID NO:10229)
5'- GG CAT GGC GGG CA-3' (FRAG 851) (SEQ ID NO:10230)
5'- GG CAT GGC GGG C-3' (FRAG 852) (SEQ ID NO:10231)
5'- GG CAT GGC GGG -3' (FRAG 853) (SEQ ID NO:10232)
5'- GG CAT GGC GG-3' (FRAG 854) (SEQ ID NO:10233)
5'- G CAT GGC GGG CAC AGG CTG GGC-3' (FRAG 855) (SEQ ID NO:10234)
5'- G CAT GGC GGG CAC AGG CTG GG-3' (FRAG 856) (SEQ ID NO:10235)
5'- G CAT GGC GGG CAC AGG CTG G-3' (FRAG 857) (SEQ ID NO:10236)
5'- G CAT GGC GGG CAC AGG CTG -3' (FRAG 858) (SEQ ID NO:10237)
5'- G CAT GGC GGG CAC AGG CT-3' (FRAG 859) (SEQ ID NO:10238)
5'- G CAT GGC GGG CAC AGG C-3' (FRAG 860) (SEQ ID NO:10239)
5'- G CAT GGC GGG CAC AGG -3' (FRAG 861) (SEQ ID NO:10240)
5'- G CAT GGC GGG CAC AG-3' (FRAG 862) (SEQ ID NO:10241)
5'- G CAT GGC GGG CAC A-3' (FRAG 863) (SEQ ID NO:10242)
5'- G CAT GGC GGG CAC-3' (FRAG 864) (SEQ ID NO:10243)
5'- G CAT GGC GGG CA-3' (FRAG 865) (SEQ ID NO:10244)
5'- G CAT GGC GGG C-3' (FRAG 866) (SEQ ID NO:10245)
5'- G CAT GGC GGG -3' (FRAG 867) (SEQ ID NO:10246)
5'- CAT GGC GGG CAC AGG CTG GGC-3' (FRAG 868) (SEQ ID NO:10247)
5'- CAT GGC GGG CAC AGG CTG GG-3' (FRAG 869) (SEQ ID NO:10248)
5'- CAT GGC GGG CAC AGG CTG G-3' (FRAG 870) (SEQ ID NO:10249)
5'- CAT GGC GGG CAC AGG CTG -3' (FRAG 871) (SEQ ID NO:10250)
5'- CAT GGC GGG CAC AGG CT-3' (FRAG 872) (SEQ ID NO:10251)
5'- CAT GGC GGG CAC AGG C-3' (FRAG 873) (SEQ ID NO:10252)
5'- CAT GGC GGG CAC AGG -3' (FRAG 874) (SEQ ID NO:10253)
5'- CAT GGC GGG CAC AG-3' (FRAG 875) (SEQ ID NO:10254)
5'- CAT GGC GGG CAC A-3' (FRAG 876) (SEQ ID NO:10255)
5'- CAT GGC GGG CAC-3' (FRAG 877) (SEQ ID NO:10256)
5'- CAT GGC GGG CA-3' (FRAG 878) (SEQ ID NO:10257)
5'- CAT GGC GGG C-3' (FRAG 879) (SEQ ID NO:10258)
5'- AT GGC GGG CAC AGG CTG GGC-3' (FRAG 880) (SEQ ID NO:10259)
5'- AT GGC GGG CAC AGG CTG GG-3' (FRAG 881) (SEQ ID NO:10260)
5'- AT GGC GGG CAC AGG CTG G-3' (FRAG 882) (SEQ ID NO:10261)
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5'- AT GGC GGG CAC AGG C-3' (FRAG 885) (SEQ ID NO:10264)
5'- AT GGC GGG CAC AGG -3' (FRAG 886) (SEQ ID NO:10265)
5'- AT GGC GGG CAC AG-3' (FRAG 887) (SEQ ID NO:10266)
5'- AT GGC GGG CAC A-3' (FRAG 888) (SEQ ID NO:10267)
5'- AT GGC GGG CAC-3' (FRAG 889) (SEQ ID NO:10268)
5'- AT GGC GGG CA-3' (FRAG 890) (SEQ ID NO:10269)
5'- T GGC GGG CAC AGG CTG GGC-3' (FRAG 891) (SEQ ID NO:10270)
5'- T GGC GGG CAC AGG CTG GG-3' (FRAG 892) (SEQ ID NO:10271)
5'- T GGC GGG CAC AGG CTG G-3' (FRAG 893) (SEQ ID NO:10272)
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5'- T GGC GGG CAC AGG CT-3' (FRAG 895) (SEQ ID NO:10274)
5'- T GGC GGG CAC AGG C-3' (FRAG 896) (SEQ ID NO:10275)
5'- T GGC GGG CAC AGG -3' (FRAG 897) (SEQ ID NO:10276)
5'- T GGC GGG CAC AG-3' (FRAG 898) (SEQ ID NO:10277)
5'- T GGC GGG CAC A-3' (FRAG 899) (SEQ ID NO:10278)

5'- T GGC GGG CAC-3' (FRAG 900) (SEQ ID NO:10279)
5'- GGC GGG CAC AGG CTG GGC-3' (FRAG 901) (SEQ ID NO:10280)
5'- GGC GGG CAC AGG CTG GG-3' (FRAG 902) (SEQ ID NO:10281)
5'- GGC GGG CAC AGG CTG G-3' (FRAG 903) (SEQ ID NO:10282)
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5'- GGC GGG CAC AG-3' (FRAG 908) (SEQ ID NO:10287)
5'- GGC GGG CAC A-3' (FRAG 909) (SEQ ID NO:10288)
5'- GC GGG CAC AGG CTG GGC-3' (FRAG 910) (SEQ ID NO:10289)
5'- GC GGG CAC AGG CTG GG-3' (FRAG 911) (SEQ ID NO:10290)
5'- GC GGG CAC AGG CTG G-3' (FRAG 912) (SEQ ID NO:10291)
5'- GC GGG CAC AGG CTG -3' (FRAG 913) (SEQ ID NO:10292)
5'- GC GGG CAC AGG CT-3' (FRAG 914) (SEQ ID NO:10293)
5'- GC GGG CAC AGG C-3' (FRAG 915) (SEQ ID NO:10294)
5'- GC GGG CAC AGG -3' (FRAG 916) (SEQ ID NO:10295)
5'- GC GGG CAC AG-3' (FRAG 917) (SEQ ID NO:10296)
5'- C GGG CAC AGG CTG GGC-3' (FRAG 918) (SEQ ID NO:10297)
5'- GGG CAC AGG CTG GG-3' (FRAG 919) (SEQ ID NO:10298)
5'- C GGG CAC AGG CTG G-3' (FRAG 920) (SEQ ID NO:10299)
5'- C GGG CAC AGG CTG -3' (FRAG 921) (SEQ ID NO:10300)
5'- C GGG CAC AGG CT-3' (FRAG 922) (SEQ ID NO:10301)
5'- C GGG CAC AGG C-3' (FRAG 923) (SEQ ID NO:10302)
5'- C GGG CAC AGG -3' (FRAG 924) (SEQ ID NO:10303)
5'- GGG CAC AGG CTG GGC-3' (FRAG 925) (SEQ ID NO:10304)
5'- GGG CAC AGG CTG GG-3' (FRAG 926) (SEQ ID NO:10305)
5'- GGG CAC AGG CTG G-3' (FRAG 927) (SEQ ID NO:10306)
5'- GGG CAC AGG CTG -3' (FRAG 928) (SEQ ID NO:10307)
5'- GGG CAC AGG CT-3' (FRAG 929) (SEQ ID NO:10308)
5'- GGG CAC AGG C-3' (FRAG 930) (SEQ ID NO:10309)
5'- GG CAC AGG CTG GGC-3' (FRAG 931) (SEQ ID NO:10310)
5'- GG CAC AGG CTG GG-3' (FRAG 932) (SEQ ID NO:10311)
5'- GG CAC AGG CTG G-3' (FRAG 933) (SEQ ID NO:10312)
5'-GG CAC AGG CTG -3' (FRAG 934) (SEQ ID NO:10313)
5'- GG CAC AGG CT-3' (FRAG 935) (SEQ ID NO:10314)
5'-G CAC AGG CTG GGC-3' (FRAG 936) (SEQ ID NO:10315)
5'-G CAC AGG CTG GG-3' (FRAG 937) (SEQ ID NO:10316)
5'-G CAC AGG CTG G-3' (FRAG 938) (SEQ ID NO:10317)
5'-G CAC AGG CTG -3' (FRAG 939) (SEQ ID NO:10318)
5'-CAC AGG CTG GGC-3' (FRAG 940) (SEQ ID NO:10319)
5'-CAC AGG CTG GG-3' (FRAG 941) (SEQ ID NO:10320)
5'-CAC AGG CTG G-3' (FRAG 942) (SEQ ID NO:10321)
5'-AC AGG CTG GGC-3' (FRAG 943) (SEQ ID NO:10322)
5'-AC AGG CTG GG-3' (FRAG 944) (SEQ ID NO:10323)
5'-C AGG CTG GGC-3' (FRAG 945) (SEQ ID NO:10324)
5'-TTT TCC TTC CTT TGT CTC TCT TC (FRAG 946) (SEQ ID NO:10325)
5'-GCT CCC GGC TGC CTG (FRAG 947) (SEQ ID NO:10326)
5'-CTC GGC CGT GCG GCT CTG TCG CTC CCG GT (FRAG 948) (SEQ ID NO:10327)
5'-CCG CCG CCC TCC GGG GGG TC (FRAG 949) (SEQ ID NO:10328)
5'-TGC TGC CGT TGG CTG CCC (FRAG 950) (SEQ ID NO:10329)
5'-CTT CTG CGG GTC GCC GG (FRAG 951) (SEQ ID NO:10330)
5'-TGC TGG GCT TGT GGC (FRAG 952) (SEQ ID NO:10331)
5'-GGC CTC TCT TCT GGG (FRAG 953) (SEQ ID NO:10332)
5'-CCT GGT CCC TCC GT (FRAG 954) (SEQ ID NO:10333)
5'-GGT GGC TCC TCT GC (FRAG 955) (SEQ ID NO:10334)
5'-GCT TGG TCC TGG GGC TGC (FRAG 956) (SEQ ID NO:10335)
5'-TGC TCT CCT CTC CTT (FRAG 957) (SEQ ID NO:10336)

Human Adenosine A2a Receptor Nucleic Acid and Antisense Oligonucleotide Fragments

5'-TGC TTT TCT TTT CTG GGC CTC TGT GGT CTG TTT TTT TCT G GCC CTG CTG GGG CGC TCT CC GCC GCC CGC CTG GCT CCC GGB GCC CBT GBT GGG CBT GCC GTG GTT CTT GCC CTC CTT TGG CTG CCG TGC CCG CTC CCC GGC CTC CTG GCG GGT GGC CGT TG GGC CCG TGT TCC CCT GGG -GCC TGG GGC TCC CTT CTC TC GCC CTT CTT GCT GGG CCT C TGC TGC TGC TGG TGC TGT GGC CCC C GTA CAC CGA GGA GCC CAT GAT GGG CAT GCC ACA GAC GAC AGG C GTB CBC CGB GGB GCC CBT GBT GGG CBT GCC BCB GBC GBC BGG C-3' (FRAG. NO. 1665) (SEQ ID NO:11049)
5'-CTG GGC CTC-3' (FRAG 1666) (SEQ ID NO:11050)
5'-TGC TTT TCT TTT CTG GGC CTC-3' (FRAG 958) (SEQ ID NO:10337)
5'-TGT GGT CTG TTT TTT TCT G-3' (FRAG 959) (SEQ ID NO:10338)
5'-GCC CTG CTG GGG CGC TCT CC-3' (FRAG 960) (SEQ ID NO:10339)
5'-GCC GCC CGC CTG GCT CCC-3' (FRAG 961) (SEQ ID NO:10340)
5'-GGB GCC CBT GBT GGG CBT GCC-3' (FRAG 962) (SEQ ID NO:10341)
5'-GTG GTT CTT GCC CTC CTT TGG CTG-3' (FRAG 963) (SEQ ID NO:10342)
5'-CCG TGC CCG CTC CCC GGC-3' (FRAG 964) (SEQ ID NO:10343)
5'-CTC CTG GCG GGT GGC CGT TG-3' (FRAG 965) (SEQ ID NO:10344)
5'-GGC CCG TGT TCC CCT GGG-3' (FRAG 966) (SEQ ID NO:10345)
5'-GCC TGG GGC TCC CTT CTC TC-3' (FRAG 967) (SEQ ID NO:10346)

5'-GCC CTT CTT GCT GGG CCT C-3' (FRAG 968) (SEQ ID NO:10347)
5'-TGC TGC TGC TGG TGC TGT GGC CCC C-3' (FRAG 969) (SEQ ID NO:10348)
5'-GTACACCGAGGAGCCCATGATGGGCATGCCACAGACGACAGGC-3' (FRAG 970) (SEQ ID NO:10349)
5'-GTBCBCCGBGGBGCCCBTGBTGGGCBTGCCBCBGBCGBCBGGC-3' (FRAG 971) (SEQ ID NO:10350)

Human Adenosine A2b Receptor Nucleic Acid & Antisense Oligonucleotide Fragments

5'-GGC GCC GTG CCG CGT CTT GGT GGC GGC GG GTT CGC GCC CGC GCG GGG CCC CTC CGG TCC GTT CGC GCC CGC GCG
GGG CCC CTC CGG TCC CGG GTC GGG GCC CCC CGC GGC C GCC TCG GGG CTG GGG CGC TGG TGG CCG GG CCG CGC CTC
CGC CTG CCG CTT CTG GCT GGG CCC CGG GCG CCC CCT CCC CTC TTG CTC GGG TCC CCG TG ACA GCG CGT CCT GTG TCT
CCA GCA GCA TGG CCG GGC CAG CTG GGC CCC BCB GCG CGT CCT GTG TCT CCB GCB GCB TGG CCG GGC CBG CTG GGC
CCC CCCAGCCCCG AGGCTCAGAA GCGGCAGGCG GAGGCGCGGT CCGGGCGCTA TGGCCATGCC CGGCGGGTCT
CACGCGGCTG CCCCTCGCCC GGCGCGCCTT CGGTAGGGGG CGCCCGGGGC CCAGCTGGCC CGGCCATGCT GCTGGAGACA
CAGGACGCGC TGTACGTGGC GCTGGAGCTG GTCATCGCCG CGCTTTCGGT GGCGGGCAAC GTGCTGGTGT GCGCCGCGGT
GGGCACGGCG AACACTCTGC AGACGCCCAC CAACTACTTC CTGGTGTCCC TGGCTGCGGC CGACGTGGCC GTGGGGCTCT
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GTATAAAAGT TTGGTCACGG GGACCCGAGC AAGAGGGGTC ATTGCTGTCC TCTGGGTCCT TGCCTTTGGC ATCGGATTGA
CTCCATTCCT GGGGTGGAAC AGTAAAGACA GTGCCACCAA CAACTGCACA GAACCCTGGG ATGGAACCAC GAATGAAAGC
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GCCCCCACTG CTTATAATGC TGGTGATCTA CATTAAGATC TTCCTGGTGG CCTGCAGGCA GCTTCAGCGC ACTGAGCTGA
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TGCTGGTTAC CTGTGCATGC TGTTAACTGT GTCACTCTTT TCCAGCCAGC TCAGGGTAAA AATAAGCCCA AGTGGGCAAT
GAATATGGCC ATTCTTCTGT CACATGCCAA TTCAGTTGTC AATCCCATTG TCTATGCTTA CCGGAACCGA GACTTCCGCT
ACACTTTTCA CAAAATTATC TCCAGGTATC TTCTCTGCCA AGCAGATGTC AAGAGTGGGA ATGGTCAGGC TGGGGTACAG
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GCCTGTCCAA TATAGTG GGGCAATTTG TTAGTTATCC GCCGCCACCA AGACGCGGCA CGGCGCCTGG ACCGGAGGGG
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TGGGTGCCGC CTCTTGGCCG CGGGGGGCCC CGACCCGTGG GTCCCGGCCA CCAGCGCCCC AGCCCCGAGG CTCAGAAGCG
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GCTTCTGCAC TGACTTCTAC GGCTGCCTCT TCCTCGCCTG CTTCGTGCTG GTGCTCACGC AGAGCTCCAT CTTCAGCCTT
CTGGCCGTGG CAGTCGACAG ATACCTGGCC ATCTGTGTCC CGCTCAGGTA TAAAAGTTTG GTCACGGGGA CCCGAGCAAG
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TAAGATCTTC CTGGTGGCCT GCAGGCAGCT TCAGCGCACT GAGCTGATGG ACCACTCGAG GACCACCCTC CAGCGGGAGA
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TACTTTTTAA CTTAGAGGCA ATGGAAAAAT AAAAGTTGAC TGTACTAAAA ATG -3' (FRAG. NO: 1670) (SEQ ID NO:12375)
5'- GGGCAATTTG TTAGTTATCC GCCGCCACCA AGACGCGGCA CGGCGCCTGG ACCGGAGGGG CCCCGCGCGG GCGCGAACTT
TGGGCTCGGG CGAGTGGGTG GTGCTCCGCC CAGCCCGAGA CGGGCGGGCG CGCGGGCCAA TGGGTGCCGC CTCTTGGCCG
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CCCTGGGATG GAACCACGAA TGAAAGCTGC TGCCTTGTGA AGTGTCTCTT TGAGAATGTG GTCCCCATGA GCTACATGGT
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ATGCTTACCG GAACCGAGAC TTCCGCTACA CTTTTCACAA AATTATCTCC AGGTATCTTC TCTGCCAAGC AGATGTCAAG
AGTGGGAATG GTCAGGCTGG GGTACAGCCT GCTCTCGGTG TGGGCCTATG ATCTAGGCTC TCGCCTCTTC CAGGAGAAGA
TACAAATCCA CAAGAAACAA AGAGGACACG GCTGGTTTTC ATTGTGAAAG ATAGCTACAC CTCACAAGGA AATGGACTGC
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TATATTTATG ATCTATTCAG CTGCTTTTAC TGTGTGGATT ATGCCAACAG CTTGAATGGA TTCTAACAGA CTCTTTTGTT
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TACTTTTTAA CTTAGAGGCA ATGGAAAAAT AAAAGTTGAC TGTACTAAAA ATG-3'(FRAG.NO:_)(SEQ ID NO:11805)
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GGGCAACGTG CTGGTGTGCG CCGCGGTGGG CACGGCGAAC ACTCTGCAGA CGCCCACCAA CTACTTCCTG GTGTCCCTGG
CTGCGGCCGA CGTGGCCGTG GGGCTCTTCG CCATCCCCTT TGCCATCACC ATCAGCCTGG GCTTCTGCAC TGACTTCTAC
GGCTGCCTCT TCCTCGCCTG CTTCGTGCTG GTGCTCACGC AGAGCTCCAT CTTCAGCCTT CTGGCCGTGG CAGTCGACAG
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CCCTGGGATG GAACCACGAA TGAAAGCTGC TGCCTTGTGA AGTGTCTCTT TGAGAATGTG GTCCCCATGA GCTACATGGT

ATATTTCAAT TTCTTTGGGT GTGTTCTGCC CCCACTGCTT ATAATGCTGG TGATCTACAT TAAGATCTTC CTGGTGGCCT GCAGGCAGCT TCAGCGCACT GAGCTGATGG ACCACTCGAG GACCACCCTC CAGCGGGAGA TCCATGCAGC CAAGTCACTG GCCATGATTG TGGGGATTTT TGCCCTGTGC TGGTTACCTG TGCATGCTGT TAACTGTGTC ACTCTTTTCC AGCCAGCTCA GGGTAAAAAT AAGCCCAAGT GGGCAATGAA TATGGCCATT CTTCTGTCAC ATGCCAATTC AGTTGTCAAT CCCATTGTCT ATGCTTACCG GAACCGAGAC TTCCGCTACA CTTTTCACAA AATTATCTCC AGGTATCTTC TCTGCCAAGC AGATGTCAAG AGTGGGAATG GTCAGGCTGG GGTACAGCCT GCTCTCGGTG TGGGCCTATG ATCTAGGCTC TCGCCTCTTC CAGGAGAAGA TACAAATCCA CAAGAAACAA AGAGGACACG GCTGGTTTTC ATTGTGAAAG ATAGCTACAC CTCACAAGGA AATGGACTGC CTCTCTTGAG CACTTCCCTG GAGCTACCAC GTATCTAGCT AATATGTATG TGTCAGTAGT AGGCTCCAAG GATTGACAAA TATATTTATG ATCTATTCAG CTGCTTTTAC TGTGTGGATT ATGCCAACAG CTTGAATGGA TTCTAACAGA CTCTTTTGTT TTTAAAAGTC TGCCTTGTTT ATGGTGGAAA ATTACTGAAA CTATTTTACT GTGAAACAGT GTGAACTATT ATAATGCAAA TACTTTTTAA CTTAGAGGCA ATGGAAAAAT AAAAGTTGAC TGTACTAAAA ATG-3'(FRAG. NO:_)(SEQ ID NO:11794)

5'-CCCAGCCCCG AGGCTCAGAA GCGGCAGGCG GAGGCGCGGT CCGGGCGCTA TGGCCATGCC CGGCGGGTCT CACGCGGCTG CCCCTCGCCC GGCGCGCCTT CGGTAGGGGG CGCCCGGGGC CCAGCTGGCC CGGCCATGCT GCTGGAGACA CAGGACGCGC TGTACGTGGC GCTGGAGCTG GTCATCGCCG CGCTTTCGGT GGCGGGCAAC GTGCTGGTGT GCGCCGCGGT GGGCACGGCG AACACTCTGC AGACGCCCAC CAACTACTTC CTGGTGTCCC TGGCTGCGGC CGACGTGGCC GTGGGGCTCT TCGCCATCCC CTTTGCCATC ACCATCAGCC TGGGCTTCTG CACTGACTTC TACGGCTGCC TCTTCCTCGC CTGCTTCGTG CTGGTGCTCA CGCAGAGCTC CATCTTCAGC CTTCTGGCCG TGGCAGTCGA CAGATACCTG GCCATCTGTG TCCCGCTCAG GTATAAAAGT TTGGTCACGG GGACCCGAGC AAGAGGGGTC ATTGCTGTCC TCTGGGTCCT TGCCTTTGGC ATCGGATTGA CTCCATTCCT GGGGTGGAAC AGTAAAGACA GTGCCACCAA CAACTGCACA GAACCCTGGG ATGGAACCAC GAATGAAAGC TGCTGCCTTG TGAAGTGTCT CTTTGAGAAT GTGGTCCCCA TGAGCTACAT GGTATATTTC AATTTCTTTG GGTGTGTTCT GCCCCCACTG CTTATAATGC TGGTGATCTA CATTAAGATC TTCCTGGTGG CCTGCAGGCA GCTTCAGCGC ACTGAGCTGA TGGACCACTC GAGGACCACC CTCCAGCGGG AGATCCATGC AGCCAAGTCA CTGGCCATGA TTGTGGGGAT TTTTGCCCTG TGCTGGTTAC CTGTGCATGC TGTTAACTGT GTCACTCTTT TCCAGCCAGC TCAGGGTAAA AATAAGCCCA AGTGGGCAAT GAATATGGCC ATTCTTCTGT CACATGCCAA TTCAGTTGTC AATCCCATTG TCTATGCTTA CCGGAACCGA GACTTCCGCT ACACTTTTCA CAAAATTATC TCCAGGTATC TTCTCTGCCA AGCAGATGTC AAGAGTGGGA ATGGTCAGGC TGGGGTACAG CCTGCTCTCG GTGTGGGCCT ATGATCTAGG CTCTCGCCTC TTCCAGGAGA AGATACAAAT CCACAAGAAA CAAAGAGGAC ACGGCTGGTT TTCATTGTGA AAGATAGCTA CACCTCACAA GGAAATGGAC TGCCTCTCTT GAGCACTTCC CTGGAGCTAC CACGTATCTA GCTAATATGT ATGTGTCAGT AGTAGCACCA AGGATTGACA AATATATTTA TGATCTATTC AGCTGCTTTT ACTGTGTGGA TTATGCCAAC AGCTTGAATG GATTCTAACA GACTCTTTTG TTTTTAAAAG TCTGCCTTGT TTATGGTGGA AAATTACTGA AACTATTTTA CTGTGAAACA GTGTGAACTA TTATAATGCA AATACTTTTT AACTTAGAGG CAATGGAAAA ATAAAAGTTG ACTGTACTAA AAATGTATAC TTGTTGCCAG GAAGGTGACC TCAAAAATTA AAAGTATAAT TATTCGGCCG GGCATGGTGG CTCACACCTG TAATTCCAGC ACTTTGGGAG GCCAAGGCAG GCGGATCACG AGGTCAGGAG TTCAAAACCA GCCTGTCCAA TATAGTG (FRAG. NO: __) (SEQ ID NO: 2424)

5'-GCGCGTCCTG-3' (FRAG. NO: 1671) (SEQ ID NO:11055)

5'-GCT GGG CCC CGG-3' (FRAG. NO: 1672) (SEQ ID NO:11056)

5'-CGG GTC GGG GCC CCC C-3' (FRAG. NO: 1673) (SEQ ID NO:11057)

5'- CGC GCC CGC G-3' (FRAG. NO: 1674) (SEQ ID NO:11058)

5'-GGC GCC GTG CCG CGT CTT GGT GGC GGC GG-3' (FRAG 972) (SEQ ID NO:10351)

5'-GTT CGC GCC CGC GCG GGG CCC CTC CGG TCC-3' (FRAG 973) (SEQ ID NO:10352)

5'-GTT CGC GCC CGC GCG GGG CCC CTC CGG TCC-3' (FRAG 974) (SEQ ID NO:10353)

5'-CGG GTC GGG GCC CCC CGC GGC C-3' (FRAG 975) (SEQ ID NO:10354)

5'-GCC TCG GGG CTG GGG CGC TGG TGG CCG GG-3' (FRAG 976) (SEQ ID NO:10355)

5'-CCG CGC CTC CGC CTG CCG CTT CTG-3' (FRAG 977) (SEQ ID NO:10356)

5'-GCT GGG CCC CGG GCG CCC CCT-3' (FRAG 978) (SEQ ID NO:10357)

5'-CCC CTC TTG CTC GGG TCC CCG TG-3' (FRAG 979) (SEQ ID NO:10358)

5'-ACAGCGCGTCCTGTGTCTCCAGCAGCATGGCCGGGCCAGCTGGGCCCC-3' (FRAG 980) (SEQ ID NO:10359)

5'-BCBGCGCGTCCTGTGTCTCCBGCBGCBTGGCCGGGCCBGCTGGGCCCC-3' (FRAG 981) (SEQ ID NO:10360)

Human Adenosine A3 Receptor Nucleic Acid and Antisense Oligonucleotide Fragments

5'-ACA GAG CAG TGC TGT TGT TGG GCA TCT TGC CTT CCC AGG G BCB GBG CB TGC TGT TGT TGG GCB TCT TGC CTT CCC BGG GCC CTT TTC TGG TGG GGT GGT GCT GTT GTT GGG CTT TCT TCT GTT CCC BCB GBG CBG TGC TGT TGT TGG GCB TCT TGC CTT CCC BGG GCC CTT TTC TGG TGG GGT GGT GCT GTT GTT GGG C TTT CTT CTG TTC CC GAATTCCCAG ATGGGCAGAG GTGGCTGGGC TGGTGACCCT AAGTGTGTCT CCTGCCTTTA TTCTCTCTAG TGGGTTATTC TTTCATGTGG TATCTTGCCT ACAGCATGCT GTGTTTGGAC ACAAACCCCT TTCCTTGGTT TCTCTGACCC AGCTGAGATG GACTGATTCC AAAAGAACTC ACCTATGTAC TGGGGTAGGG GAGGGAGGGT TTTTTGCAGT ATTTAACTAA GGTTCAAAGA GTGCTATATA GTGAGAAAGG CTTCTTTTTT TTTTTTTTTT TTTTTTGGCA GAGTGCTGCC TCCTAGAAAT TTCTCTTGGT AACTTCCTTC TCTGAAGCAC AGATAAAGAA AACAATTACA GTAGAAACAT TTATGAGGGA CACATTGGAG GCCGATGAAG CTTTTCAAGT TCCAGCAGTG CAGGGATGTG GGCAGAACTG ACATTGGAAA ATACTAGAAT GATGGAAATT CAGTTGGAGA GGACTGCCCT TTTTAATGTC TGGGGAGTCT GCTCAGGGAG AAATGACAAG TCTGGCGGGG ACAAGTATGG GATTTGGTAA GACTTGGATC AACTTGGGAT ACAGGGTGGG GGTCGGGAGT GGAATCAATG AATGATGCCA GAGCAGATCA ACTAACAAGA GGACCCTGAT GAGCCCCAGG CAGAGGCGTC TCCCTTATGC CCCACTCTGA AGTGTTTGTT AGTAAACACC AGAACGCCAT TGTTGTTACT GCTGAATTTT ATTTTGGGCT GTACATATTT AGATGCTTAA GGTAAAAATG ATAAAGCCCT CAAGCCACTG TGTGGGTTTG GGTCCAAGTG TTCCTTCTTG CTGCCTCTCT AACACGCCTG GTTAAAATAA TCCCTTTGGA TGGTGCTGAG AAGCACCTGA ACCAAGTGGG TCCCCAAATA ACAATGGCGT GCAAGTGTCT GGTTCCCAGA AGTTGGTGAC TAGGTAAGCA GCTTCAGGGA GAGGGGGCTG ATTCCCAGAC AGTCGCCTGT TCCTGCGGGG ATGGGGCTGA GGCTTGGGGA ATGTGGGCAG GAGGATATGC CATTTGATTC TGTTGCACAC GTTCTTTTCC CTTCTTTCTG TATGTCTGGT CATTCTGCTA TTCTGTCGTT CCTCACATAG GTTGGACATT GGCCGGCTGC CAGCATAAGT GCCAGTGTGA TTTTGCTAGG TGTGAGCTGA GAAAGAGAGG TGGAGGCTAA GCAGGTGTGA TGCTTCTCAG AGGTGCTGAG TTTTTGCCCT TCTGAGCAGG GAATCTTTGC TTATCCCTTT GACCAAGGAT CTTTGCTGCA AAGGCTGGGT ATCGGCTGTG CTCAGCAAAG CGTCAACTCG TGCAAGAACT TAGCAGGAAT AGTTCTGGCT AAGGTTAGGA GGCTGCCACC AAAGTCTCTT TTTTGTTCCT CTGCTTCTCC CGTTTGCCTC CTTATCATGA GATCTTTTTG CTAAGCTGGC AGAAAGATTG CATAGTCAGT GCTTCCAGCT CTGCTCCCAC CTGATCCTGC ACTGTCCTCT GGTCCCTGAA TGAATGAACT CTGATACCCA ATCTTGTCTC GAGCCTTCTC TATGCCACTC ATGGCTCCTC TTCTGCTCTT TCCATCTTTT TGCTGAGAGT TCTGAGCTCT GTACTTCCTC TTGGCCCATC TCACTTCCTG AAACACCCCT GAAGAGGGTT GCTTATCTTG ATGGAACTCA AAAAGCCAAA AAGCTGCAGG CAGAGGCGTT GAGGACATCT GTTTGGGGAA CTAAGAGCAG CAGCACTTTC AGATTCAGTC CATATAGAGC TGTCCTACAG CATTCTGGAA ACTTGAGGAT GTGCGGTGCA TAAAGGGGCT GGAAGTGACC CACCTGTGAT GAGCCCTTTC TAAGGAGAAG GGTTTCCAAG AGATCACCCC ACCAGAAAAG GGTAGGAATG AGCAAGTTGG

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GAGCAGAGAA CCTGCTCTCG GAGGATGCCT AGGAGATGTT GGGAACAGAA GAAATAAACT GAGTTTAAGG GGGACTTAAA
CTGCTGAATT C -3' (FRAG. NO:_) (SEQ ID NO:11808)

5'- CTGCTGAATT TTATTTTGGA CTGTACATAT TTAGATGCTT AAGGTAAAAA TGATAAAGCC CTCAAGCCAC TGTGTGGGTT
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GACTGATTCC AAAAGAACTC ACCTATGTAC TGGGGTAGGG GAGGGAGGGT TTTTTGCAGT ATTTAACTAA GGTTCAAAGA
GTGCTATATA GTGAGAAAGG CTTCTTTTTT TTTTTTTTTT TTTTTTGGCA GAGTGCTGCC TCCTAGAAAT TTCTCTTGGT
AACTTCCTTC TCTGAAGCAC AGATAAAGAA AACAATTACA GTAGAAACAT TTATGAGGGA CACATTGGAG GCCGATGAAG
CTTTTCAAGT TCCAGCAGTG CAGGGATGTG GGCAGAACTG ACATTGGAAA ATACTAGAAT GATGGAAATT CAGTTGGAGA
GGACTGCCCT TTTTAATGTC TGGGGAGTCT GCTCAGGGAG AAATGACAAG TCTGGCGGGG ACAAGTATGG GATTTGGTAA
GACTTGGATC AACTTGGGAT ACAGGGTGGG GGTCGGGAGT GGAATCAATG AATGATGCCA GAGCAGATCA ACTAACAAGA
GGACCCTGAT GAGCCCCAGG CAGAGGCGTC TCCCTTATGC CCCACTCTGA AGTGTTTGTT AGTAAACACC AGAACGCCAT
TGTTGTTACT GCTGAATTTT ATTTTGGGCT GTACATATTT AGATGCTTAA GGTAAAAATG ATAAAGCCCT CAAGCCACTG
TGTGGGTTTG GGTCCAAGTG TTCCTTCTTG CTGCCTCTCT AACACGCCTG GTTAAAATAA TCCCTTTGGA TGGTGCTGAG
AAGCACCTGA ACCAAGTGGG TCCCCAAATA ACAATGGCGT GCAAGTGTCT GGTTCCCAGA AGTTGGTGAC TAGGTAAGCA
GCTTCAGGGA GAGGGGGCTG ATTCCCAGAC AGTCGCCTGT TCCTGCGGGG ATGGGGCTGA GGCTTGGGGA ATGTGGGCAG
GAGGATATGC CATTTGATTC TGTTGCACAC GTTCTTTTCC CTTCTTTCTG TATGTCTGGT CATTCTGCTA TTCTGTCGTT
CCTCACATAG GTTGGACATT GGCCGGCTGC CAGCATAAGT GCCAGTGTGA TTTTGCTAGG TGTGAGCTGA GAAAGAGAGG
TGGAGGCTAA GCAGGTGTGA TGCTTCTCAG AGGTGCTGAG TTTTTGCCCT TCTGAGCAGG GAATCTTTGC TTATCCCTTT
GACCAAGGAT CTTTGCTGCA AAGGCTGGGT ATCGGCTGTG CTCAGCAAAG CGTCAACTCG TGCAAGAACT TAGCAGGAAT
AGTTCTGGCT AAGGTTAGGA GGCTGCCACC AAAGTCTCTT TTTTGTTCCT CTGCTTCTCC CGTTTGCCTC CTTATCATGA
GATCTTTTTG CTAAGCTGGC AGAAAGATTG CATAGTCAGT GCTTCCAGCT CTGCTCCCAC CTGATCCTGC ACTGTCCTCT
GGTCCCTGAA TGAATGAACT CTGATACCCA ATCTTGTCTC GAGCCTTCTC TATGCCACTC ATGGCTCCTC TTCTGCTCTT
TCCATCTTTT TGCTGAGAGT TCTGAGCTCT GTACTTCCTC TTGGCCCATC TCACTTCCTG AAACACCCCT GAAGAGGGTT
GCTTATCTTG ATGGAACTCA AAAAGCCAAA AAGCTGCAGG CAGAGGCGTT GAGGACATCT GTTTGGGGAA CTAAGAGCAG
CAGCACTTTC AGATTCAGTC CATATAGAGC TGTCCTACAG CATTCTGGAA ACTTGAGGAT GTGCGGTGCA TAAAGGGGCT
GGAAGTGACC CACCTGTGAT GAGCCCTTTC TAAGGAGAAG GGTTTCCAAG AGATCACCCC ACCAGAAAAG GGTAGGAATG
AGCAAGTTGG GAATTTTAGA CTGTCACTGC ACATGGACCT CTGGGAAGAC GTCTGGCGAG AGCTAGGCCC ACTGGCCCTA
CAGACGGATC TTGCTGGCTC ACCTGTCCCT GTGGAGGTTC CCCTGGGAAG GCAAGATGCC CAACAACAGC ACTGCTCTGT
CATTGGCCAA TGTTACCTAC ATCACCATGG AAATTTTCAT TGGACTCTGC GCCATAGTGG GCAACGTGCT GGTCATCTGC
GTGGTCAAGC TGAACCCCAG CCTGCAGACC ACCACCTTCT ATTTCATTGT CTCTCTAGCC CTGGCTGACA TTGCTGTTGG
GGTGCTGGTC ATGCCTTTGG CCATTGTTGT CAGCCTGGGC ATCACAATCC ACTTCTACAG CTGCCTTTTT ATGACTTGCC
TACTGCTTAT CTTTACCCAC GCCTCCATCA TGTCCTTGCT GGCCATCGCT GTGGACCGAT ACTTGCGGGT CAAGCTTACC
GTCAGGTAGC CTGCGGCGTG GGGTGGGCAG CAATTGAGGC AGCTGGGAAA TGAGGCTACA AAGCCAGAGC -3' (FRAG. NO:_) (SEQ ID NO:11806)

5'-CGAATTCGGG GGACATCTGT TTGGGGAACT AAGAGCAGCA GCACTTTCAG ATTCAGTCCA TATAGAGCTG TCCTACAGCA
TTCTGGAAAC TTGAGGATGT GCGGTGCATA AACGGGCTGG AAGTGACCCA CCTGTGATGA GCCCTTTCTA AGGAGAAGGG
TTTCCAAGAG ATCACCCCAC CAGAAAAGGG TAGGAATGAG CAAGTTGGGA ATTTTAGACT GTCACTGCAC ATGGACCTCT
GGGAAGACGT CTGGCGAGAG CTAGGCCCAC TGGCCCTACA GACGGATCTT GCTGGCTCAC CTGTCCCTGT GGAGGTTCCC
CTGGGAAGGC AAGATGCCCA ACAACAGCAC TGCTCTGTCA TTGGCCAATG TTACCTACAT CACCATGGAA ATTTTCATTG
GACTCTGCGC CATAGTGGGC AACGTGCTGG TCATCTGCGT GGTCAAGCTG AACCCCAGCC TGCAGACCAC CACCTTCTAT
TTCATTGTCT CTCTAGCCCT GGCTGACATT GCTGTTGGGG TGCTGGTCAT GCCTTTGGCC ATTGTTGTCA GCCTGGGCAT
CACAATCCAC TTCTACAGCT GCCTTTTTAT GACTTGCCTA CTGCTTATCT TTACCCACGC CTCCATCATG TCCTTGCTGG
CCATCGCTGT GGACCGATAC TTGCGGGTCA AGCTTACCGT CAGATACAAG AGGGTCACCA CTCACAGAAG AATATGGCTG
GCCCTGGGCC TTTGCTGGCT GGTGTCATTC CTGGTGGGAT TGACCCCCAT GTTTGGCTGG AACATGAAAC TGACCTCAGA
GTACCACAGA AATGTCACCT TCCTTTCATG CCAATTTGTT TCCGTCATGA GGATGGACTA CATGGTATAC TTCAGCTTCC
TCACCTGGAT TTTCATCCCC CTGGTTGTCA TGTGCGCCAT CTATCTTGAC ATCTTTTACA TCATTCGGAA CAAACTCAGT
CTGAACTTAT CTAACTCCAA AGAGACAGGT GCATTTTATG GACGGGAGTT CAAGACGGCT AAGTCCTTGT TTCTGGTTCT
TTTCTTGTTT GCTCTGTCAT GGCTGCCTTT ATCTCTCATC AACTGCATCA TCTACTTTAA TGGTGAGGTA CCACAGCTTG
TGCTGTACAT GGGCATCCTG CTGTCCCATG CCAACTCCAT GATGAACCCT ATCGTCTATG CCTATAAAAT AAAGAAGTTC
AAGGAAACCT ACCTTTTGAT CCTCAAAGCC TGTGTGGTCT GCCATCCCTC TGATTCTTTG GACACAAGCA TTGAGAAGAA
TTCTGAGTAG TTATCCATCA GAGATGACTC TGTCTCATTG ACCTTCAGAT TCCCCATCAA CAAACACTTG AGGGCCTGTA
TGCCTGGGCC AAGGGATTTT TACATCCTTG ATTACTTCCA CTGAGGTGGG AGCATCTCCA GTGCTCCCCA ATTATATCTC
CCCCACTCCA CTACTCTCTT CCTCCACTTC ATTTTTCCTT TGTCCTTTCT CTCTAATTCA GTGTTTTGGA GGCCTGACTT
GGGGACAACG TATTATTGAT ATTATTGTCT GTTTTCCTTC TTCCCAATAG AAGAATAAGT CATGGAGCCT GAAGGGTGCC
TAGTTGACTT ACTGACAAAA GGCTCTAGTT GGGCTGAACA TGTGTGTGGT GGTGACTCAT TTCCATGCCA TTGTGGAATT
GAGCAGAGAA CCTGCTCTCG GAGGATGCCT AGGAGATGTT GGGAACAGAA GAAATAAACT GAGTTTAAGG GGGACTTAAA
CTGCTGAATT C -3' (FRAG. NO:_) (SEQ ID NO:11796)

5'-TTCCCAG ATGGGCAGAG GTGGCTGGGC TGGTGACCCT AAGTGTGTCT CCTGCCTTTA TTCTCTCTAG TGGGTTATTC
TTTCATGTGG TATCTTGCCT ACAGCATGCT GTGTTTGGAC ACAAACCCCT TTCCTTGGTT TCTCTGACCC AGCTGAGATG
GACTGATTCC AAAAGAACTC ACCTATGTAC TGGGGTAGGG GAGGGAGGGT TTTTTGCAGT ATTTAACTAA GGTTCAAAGA
GTGCTATATA GTGAGAAAGG CTTCTTTTTT TTTTTTTTTT TTTTTTGGCA GAGTGCTGCC TCCTAGAAAT TTCTCTTGGT
AACTTCCTTC TCTGAAGCAC AGATAAAGAA AACAATTACA GTAGAAACAT TTATGAGGGA CACATTGGAG GCCGATGAAG
CTTTTCAAGT TCCAGCAGTG CAGGGATGTG GGCAGAACTG ACATTGGAAA ATACTAGAAT GATGGAAATT CAGTTGGAGA
GGACTGCCCT TTTTAATGTC TGGGGAGTCT GCTCAGGGAG AAATGACAAG TCTGGCGGGG ACAAGTATGG GATTTGGTAA
GACTTGGATC AACTTGGGAT ACAGGGTGGG GGTCGGGAGT GGAATCAATG AATGATGCCA GAGCAGATCA ACTAACAAGA
GGACCCTGAT GAGCCCCAGG CAGAGGCGTC TCCCTTATGC CCCACTCTGA AGTGTTTGTT AGTAAACACC AGAACGCCAT
TGTTGTTACT GCTGAATTTT ATTTTGGGCT GTACATATTT AGATGCTTAA GGTAAAAATG ATAAAGCCCT CAAGCCACTG
TGTGGGTTTG GGTCCAAGTG TTCCTTCTTG CTGCCTCTCT AACACGCCTG GTTAAAATAA TCCCTTTGGA TGGTGCTGAG
AAGCACCTGA ACCAAGTGGG TCCCCAAATA ACAATGGCGT GCAAGTGTCT GGTTCCCAGA AGTTGGTGAC TAGGTAAGCA
GCTTCAGGGA GAGGGGGCTG ATTCCCAGAC AGTCGCCTGT TCCTGCGGGG ATGGGGCTGA GGCTTGGGGA ATGTGGGCAG

GAGGATATGC CATTTGATTC TGTTGCACAC GTTCTTTTCC CTTCTTTCTG TATGTCTGGT CATTCTGCTA TTCTGTCGTT CCTCACATAG GTTGGACATT GGCCGGCTGC CAGCATAAGT GCCAGTGTGA TTTTGCTAGG TGTGAGCTGA GAAAGAGAGG TGGAGGCTAA GCAGGTGTGA TGCTTCTCAG AGGTGCTGAG TTTTTGCCCT TCTGAGCAGG GAATCTTTGC TTATCCCTTT GACCAAGGAT CTTTGCTGCA AAGGCTGGGT ATCGGCTGTG CTCAGCAAAG CGTCAACTCG TGCAAGAACT TAGCAGGAAT AGTTCTGGCT AAGGTTAGGA GGCTGCCACC AAAGTCTCTT TTTTGTTCCT CTGCTTCTCC CGTTTGCCTC CTTATCATGA GATCTTTTTG CTAAGCTGGC AGAAAGATTG CATAGTCAGT GCTTCCAGCT CTGCTCCCAC CTGATCCTGC ACTGTCCTCT GGTCCCTGAA TGAATGAACT CTGATACCCA ATCTTGTCTC GAGCCTTCTC TATGCCACTC ATGGCTCCTC TTCTGCTCTT TCCATCTTTT TGCTGAGAGT TCTGAGCTCT GTACTTCCTC TTGGCCCATC TCACTTCCTG AAACACCCCT GAAGAGGGTT GCTTATCTTG ATGGAACTCA AAAAGCCAAA AAGCTGCAGG CAGAGGCGTT GAGGACATCT GTTTGGGGAA CTAAGAGCAG CAGCACTTTC AGATTCAGTC CATATAGAGC TGTCCTACAG CATTCTGGAA ACTTGAGGAT GTGCGGTGCA TAAAGGGGCT GGAAGTGACC CACCTGTGAT GAGCCCTTTC TAAGGAGAAG GGTTTCCAAG AGATCACCCC ACCAGAAAAG GGTAGGAATG AGCAAGTTGG GAATTTTAGA CTGTCACTGC ACATGGACCT CTGGGAAGAC GTCTGGCGAG GCTAGGCCC ACTGGCCCTA CAGACGGATC TTGCTGGCTC ACCTGTCCCT GTGGAGGTTC CCTGGGAAG GCAAGATGCC CAACAACAGC ACTGCTCTGT CATTGGCCAA TGTTACCTAC TCACCATGG AAATTTTCAT TGGACTCTGC GCCATAGTGG GCAACGTGCT GGTCATCTGC GTGGTCAAGC TGAACCCCAG CCTGCAGACC ACCACCTTCT ATTTCATTGT CTCTCTAGCC TGGCTGACA TTGCTGTTGG GGTGCTGGTC ATGCCTTTGG CCATTGTTGT CAGCCTGGGC TCACAATCC ACTTCTACAG CTGCCTTTTT ATGACTTGCC TACTGCTTAT CTTTACCCAC CCTCCATCA TGTCCTTGCT GGCCATCGCT GTGGACCGAT ACTTGCGGGT CAAGCTTACC GTCAGGTAGC CTGCGGCGTG GGGTGGGCAG CAATTGAGGC AGCTGGGAAA TGAGGCTACA AGCCAGAGC-3' (FRAG. NO:_) (SEQ ID NO:12484)

5'-GGGCAATTTG TTAGTTATCC GCCGCCACCA AGACGCGGCA CGGCGCCTGG ACCGGAGGGG CCCCGCGCGG GCGCGAACTT TGGGCTCGGG CGAGTGGGTG GTGCTCCGCC CAGCCCGAGA CGGGCGGGCG CGCGGGCCAA TGGGTGCCGC CTCTTGGCCG CGGGGGGCCC CGACCCGTGG GTCCCGGCCA CCAGCGCCCC AGCCCCGAGG CTCAGAAGCG GCAGGCGGAG GCGCGGTCCG GGCGCTATGG CCATGCCCGG CGGGTCTCAC GCGGCTGCCC CTCGCCCGGC GCGCCTTCGG TAGGGGGCGC CCGGGGCCCA GCTGGCCCGG CCATGCTGCT GGAGACACAG GACGCGCTGT ACGTGGCGCT GGAGCTGGTC ATCGCCGCGC TTTCGGTGGC GGGCAACGTG CTGGTGTGCG CCGCGGTGGG CACGGCGAAC ACTCTGCAGA CGCCCACCAA CTACTTCCTG GTGTCCCTGG CTGCGGCCGA CGTGGCCGTG GGGCTCTTCG CCATCCCCTT TGCCATCACC ATCAGCCTGG GCTTCTGCAC TGACTTCTAC GGCTGCCTCT TCCTCGCCTG CTTCGTGCTG GTGCTCACGC AGAGCTCCAT CTTCAGCCTT CTGGCCGTGG CAGTCGACAG ATACCTGGCC ATCTGTGTCC CGCTCAGGTA TAAAAGTTTG GTCACGGGGA CCCGAGCAAG AGGGGTCATT GCTGTCCTCT GGGTCCTTGC CTTTGGCATC GGATTGACTC CATTCCTGGG GTGGAACAGT AAAGACAGTG CCACCAACAA CTGCACAGAA CCCTGGGATG GAACCACGAA TGAAAGCTGC TGCCTTGTGA AGTGTCTCTT TGAGAATGTG GTCCCCATGA GCTACATGGT ATATTTCAAT TTCTTTGGGT GTGTTCTGCC CCCACTGCTT ATAATGCTGG TGATCTACAT TAAGATCTTC CTGGTGGCCT GCAGGCAGCT TCAGCGCACT GAGCTGATGG ACCACTCGAG GACCACCCTC CAGCGGGAGA TCCATGCAGC CAAGTCACTG GCCATGATTG TGGGGATTTT TGCCCTGTGC TGGTTACCTG TGCATGCTGT TAACTGTGTC ACTCTTTTCC AGCCAGCTCA GGGTAAAAAT AAGCCCAAGT GGGCAATGAA TATGGCCATT CTTCTGTCAC ATGCCAATTC AGTTGTCAAT CCCATTGTCT ATGCTTACCG GAACCGAGAC TTCCGCTACA CTTTTCACAA AATTATCTCC AGGTATCTTC TCTGCCAAGC AGATGTCAAG AGTGGGAATG GTCAGGCTGG GGTACAGCCT GCTCTCGGTG TGGGCCTATG ATCTAGGCTC TCGCCTCTTC CAGGAGAAGA TACAAATCCA CAAGAAACAA AGAGGACACG GCTGGTTTTC ATTGTGAAAG ATAGCTACAC CTCACAAGGA AATGGACTGC CTCTCTTGAG CACTTCCCTG GAGCTACCAC GTATCTAGCT AATATGTATG TGTCAGTAGT AGGCTCCAAG GATTGACAAA TATATTTATG ATCTATTCAG CTGCTTTTAC TGTGTGGATT ATGCCAACAG CTTGAATGGA TTCTAACAGA CTCTTTTGTT TTTAAAAGTC TGCCTTGTTT ATGGTGGAAA ATTACTGAAA CTATTTTACT GTGAAACAGT GTGAACTATT ATAATGCAAA TACTTTTTAA CTTAGAGGCA ATGGAAAAAT AAAAGTTGAC TGTACTAAAA ATG-3'(FRAG. NO:_)(SEQ ID NO:11794)

5'-GBG CB TGC-3' (FRAG. NO:1676) (SEQ ID NO:11060)
5'-TTG TTG GGC-3' (FRAG. NO:1677) (SEQ ID NO:11061)
5'-TGC CTT CCC BGG G-3' (FRAG. NO:1678) (SEQ ID NO:11062)
5'-GTT GTT GGG CAT CTT GCC-3' (FRAG. NO:1679) (SEQ ID NO:9372)
5'-GTG GGC CTA GCT CTC GCC-3' (GRAG. NO:1680) (SEQ ID NO:9374)
5'-ACA GAG CA TGC TGT TGT TGG GCA TCT TGC CTT CCC AGG G-3' (FRAG 982) (SEQ ID NO:10361)
5'-BCB GBG CB TGC TGT TGT TGG GCB TCT TGC CTT CCC BGG G-3' (FRAG 983) (SEQ ID NO:10362)
5'-CCC TTT TCT GGT GGG GTG-3' (FRAG 984) (SEQ ID NO:10363)
5'-GTG CTG TTG TTG GGC-3' (FRAG 985) (SEQ ID NO:10364)
5'-TTT CTT CTG TTC CC-3' (FRAG 986) (SEQ ID NO:10365)
5'-CCC TTT TCT GGT GGG GTG-3' (FRAG 987) (SEQ ID NO:10366)
5'-GTG CTG TTG TTG GGC-3' (FRAG 988) (SEQ ID NO:10367)
5'-TTT CTT CTG TTC CC-3' (FRAG 989) (SEQ ID NO:10368)

Human IgE Receptor (Nucleic Acid and Antisense Oligonucleotide Fragments

5'-TTT CCC CTG GGT CTT CC CTC CTG CTC TTT TTT C ATT TGC TCT CCT ATT ACT TTC TGT GTC CAT TTT TTC ATT AAC CGA GCT GT BTT TGC TCT CCT BTT BCT TTC TGT GTC CBT TTT TTC BTT BBC CGB GCT GT-3' (FRAG. NO:1681) (SEQ ID NO:11063)
5'-CCC CTG GG-3' (FRAG. NO:1682) (SEQ ID NO:11064)
5'-GCTCTCCTBTT-3' (FRAG. NO:1683) (SEQ ID NO:11065)
5'-CBTTBBCCGBGCTG-3' (FRAG. NO:1684) (SEQ ID NO:11066)
5'-TTT CCC CTG GGT CTT CC-3' (FRAG 990) (SEQ ID NO:10369)
5'-CTC CTG CTC TTT TTT C-3' (FRAG 991) (SEQ ID NO:10370)
ATTTGCTCTCCTATTACTTTCTGTGTCCATTTTTTCATTAACCGAGCTGT (FRAG 992) (SEQ ID NO:10371)
BTTTGCTCTCCTBTTBCTTTCTGTGTCCBTTTTTTCBTTBBCCGBGCTGT (FRAG 993) (SEQ ID NO:10372)

Human Fc-(Receptor CD23 Antigen (IgE Receptor)

Nucleic Acid and Antisense Oligonucleotide Fragments

5'-GCC TGT GTC TGT CCT CCT GCT TCG TTC CTC TCG TTC CTG CTT GGT GCC CTT GCC G GTC CTG CTC CTC CGG GCT GTG G GTC GTG GCC CTG GCT CCG GCT GGT GGG CTC CCC TGG CCT TCG CTG GCT GGC GGC GTG C GGG TCT TGC TCT GGG CCT GGC TGT GGC CGT GGT TGG GGG TCT TC GCT GCC TCC GTT TGG GTG GC TCT CTG AAT ATT GAC CTT CCT CCA TGG CGG TCC TGC TTG GAT TCT CCC GA TCT CTG BBT BTT GBC CTT CCT CCB TGG CGG TCC TGC TTG GBT TCT CCC GB-3'(FRAG 1685)(SEQ ID NO:11067)
5'-GT CCT CCT-3' (FRAG 1686) (SEQ ID NO:11068)
5'-TGT GTC TGT CCT CC-3' (FRAG 1687) (SEQ ID NO:11069)
5'-GTG GCC CTG GC-3' (FRAG 1688) (SEQ ID NO:11070)

5'-CGT GGT TGG GG-3' (FRAG 1689) (SEQ ID NO:11071)
5'-TCT CTG BBT BTT GBC C-3' (FRAG1690) (SEQ ID NO:11072)
5'-GCC TGT GTC TGT CCT CCT-3' (FRAG 994) (SEQ ID NO:10373)
5'-GCT TCG TTC CTC TCG TTC-3' (FRAG 995) (SEQ ID NO:10374)
5'-CTG CTT GGT GCC CTT GCC G-3' (FRAG 996) (SEQ ID NO:10375)
5'-GTC CTG CTC CTC CGG GCT GTG G-3' (FRAG 997) (SEQ ID NO:10376)
5'-GTC GTG GCC CTG GCT CCG GCT GGT GGG CTC CCC TGG-3' (FRAG 998) (SEQ ID NO:10377)
5'-CCT TCG CTG GCT GGC GGC GTG C-3' (FRAG 999) (SEQ ID NO:10378)
5'-GGG TCT TGC TCT GGG CCT GGC TGT-3' (FRAG 1000) (SEQ ID NO:10379)
5'-GGC CGT GGT TGG GGG TCT TC-3' (FRAG 1001) (SEQ ID NO:10380)
5'-GCT GCC TCC GTT TGG GTG GC (FRAG 1002) (SEQ ID NO:10381)
5'-TCT CTG AAT ATT GAC CTT CCT CCA TGG CGG TCC TGC TTG GAT TCT CCC GA (FRAG 1003) (SEQ ID NO:10382)
5'-TCT CTG BBT BTT GBC CTT CCT CCB TGG CGG TCC TGC TTG GBT TCT CCC GB (FRAG 1004) (SEQ ID NO:10383)

Human IgE Receptor (Subunit Nucleic Acid and Antisense Oligonucleotide Fragments

5'- GCC TTT CCT GGT TCT CTT GTT GTT TTT GGG GTT TGG CTT ACA GTA GAG TAG GGG ATT CCA TGG CAG GAG CCA TCT TCT TCA TGG ACT CC TTC AAG GAG ACC TTA GGT TTC TGA GGG ACT GCT AAC ACG CCA TCT GGA GC BCB GTB GBG TBG GGG BTT CCB TGG CBG GBG CCB TCT TCT TCB TGG BCT CC TTC BBG GBG BCC TTB GGT TTC TGB GGG BCT GCT BBC BCG CCB TCT GGB GC GTT GTT TTT GGG GTT TGG CTT GCC TTT CCT GGT TCT CTT BCB GTB GBG TBG GGG BTT CCB TGG CBG GBG CCB TCT TCT TCB TGG BCT CC TTC BBG GBG BCC TTB GGT TTC TGB GGG BCT GCT BBC BCG CCB TCT GGB GC-3' (FRAG. NO: 1691) (SEQ ID NO:11073)
5'- TGG BCT CC -3' (FRAG. NO: 1692) (SEQ ID NO:11074)
5'-CCB TCT GGB-3' (FRAG. NO: 1693) (SEQ ID NO:11075)
5'-CT GCT BBC BCG-3' (FRAG. NO: 1694) (SEQ ID NO:11076)
5'-GTT TTT GGG GTT TG-3' (FRAG. NO: 1695) (SEQ ID NO:11077)
5'-GCC TTT CCT GGT TCT CTT GTT GTT TTT GGG GTT TGG CTT-3' (FRAG. NO:1005) (SEQ ID NO:10384)
5'-ACAGTAGAGTAGGGGATTCCATGGCAGGAGCCATCTTCTTCATGGACTCC-3'(FRAG.NO:1006)(SEQ ID NO:10385)
5'-TTC AAG GAG ACC TTA GGT TTC TGA GGG ACT GCT AAC ACG CCA TCT GGA GC-3' (FRAG. NO:1007) (SEQ ID NO:10386)
5'-BCB GTB GBG TBG GGG BTT CCB TGG CBG GBG CCB TCT TCT TCB TGG BCT CC TTC BBG GBG BCC TTB GGT TTC TGB GGG-3' (FRAG. NO:1008) (SEQ ID NO:10387)
5'-BCT GCT BBC BCG CCB TCT GGB GC-3' (FRAG. NO:1009) (SEQ ID NO:10388)
5'-GTT GTT TTT GGG GTT TGG CTT-3' (FRAG. NO:1010) (SEQ ID NO:10389)
5'-GCC TTT CCT GGT TCT CTT-3' (FRAG. NO:1011) (SEQ ID NO:10390)
5'-BCBGTBGBGTBGGGGBTTCCBTGGCBGGBGCCBTCTTCTTCBTGGBCTCC-3'(FRAG.NO:1012) (SEQ ID NO:10391)
5'-TTC BBG GBG BCC TTB GGT TTC TGB GGG BCT GCT BBC BCG CCB TCT GGB GC-3' (FRAG.NO:1013) (SEQ ID NO:10392)

Human IgE Receptor (Fc Epsilon R) Nucleic Acid and Antisense Oligonucleotide Fragments

5'-GCC TGT GTC TGT CCT CCT GCT TCG TTC CTC TCG TTC CTG CTT GGT GCC CTT GCC G GTC CTG CTC CTC CGG GCT GTG G GTC CTC GCC CTG GCT CCG GCT GGT GGG CTC CCC TGG CCT TCG CTG GCT GGC GGC GTG C CCC BGB BCG BGB CCC GGB CCG BCB GGC CGT GGT TGG GGG TCT TC GCT GCC TCC GTT TGG GTG GC GAT CTC TGA ATA TTGA CCT TCC ATG GCG GTC CTG CTT GGA GBT CTC TGB BTB TTGB CCT TCC BTG GCG GTC CTG CTT GGB-3' (FRAG: 1696) (SEQ ID NO:11078)
5'-TCG TTC CTC TCG-3' (FRAG: 1697) (SEQ ID NO:12370)
5'-BGB BCG BGB C-3' (FRAG: 1698) (SEQ ID NO:11080)
5'-TGB BTB TTGB-3' (FRAG: 1699) (SEQ ID NO:11081)
5'-GCC TGT GTC TGT CCT CCT-3' (FRAG. NO:1014) (SEQ ID NO:10393)
5'-GCT TCG TTC CTC TCG TTC-3' (FRAG. NO:1015)(SEQ ID NO:10394)
5'-CTG CTT GGT GCC CTT GCC G-3' (FRAG. NO:1016)(SEQ ID NO:10395)
5'-GTC CTG CTC CTC CGG GCT GTG G-3' (FRAG. NO:1017)(SEQ ID NO:10396)
5'-GTC CTC GCC CTG GCT CCG GCT GGT GGG CTC CCC TGG-3' (FRAG. NO:1018) (SEQ ID NO:10397)
5'-CCT TCG CTG GCT GGC GGC GTG C-3' (FRAG. NO:1019) (SEQ ID NO:10398)
5'-CCC BGB BCG BGB CCC GGB CCG BCB-3' (FRAG. NO:1020) (SEQ ID NO:10399)
5'-GGC CGT GGT TGG GGG TCT TC-3' (FRAG. NO:1021) (SEQ ID NO:10400)
5'-GCT GCC TCC GTT TGG GTG GC-3' (FRAG. NO:1022) (SEQ ID NO:10401)
5'-GBT CTC TGB BTB TTGB CCT TCC BTG GCG GTC CTG CTT GGB-3' (FRAG. NO:1023) (SEQ ID NO:10402)

Human High Affinity IgE Receptor Oligonucleotide Fragments

5'-AACAAGAAAA GCGTTGGTAG CTCTGGTGAA TCCCAAAAGA ATGTGGCAGT TGCTAGCCAT GCTCCTGAAT ATGTATAAAC AGTACATCAT ATGACTAAGA GTTTGACTTA GGGGTTAGAT TTTATGTGTT TGAACCCCAA ATTAGTTATT TAATAGTTGG CACCCCAAAA CAAGTTACTT AACCTCACTA AGGTTCAGTT TTCCTGTTTA TAAAATGTAG ATAGTGATAG TATGTACTTT ATAGGATTAT TGTGAAAAAT AAATGAAATA TCAGATTTAT TTAGGATAAC ACCTGGCATA TGTTTGGTAT TCAGAATTAG TTGCTGCTGT TTTATTCTGC TCTCCCTTGC ATCCCACTTT TCTAAGTTGT AAACTAAATA GTTGTACACA GATTGACAGA TTAAGAAAGG CTTGTGATTG TGCTAGACCT ATGCCTATGC CTCTGTCTCA CCAGATTCCA GGTGTATATG TGGAGGTGGG ATAGGGAGTG GAGTAAGTGG GTAAATATTA AATTGCCCAG TTGGGCACCA TCCTGAATAT TATCTCTAAA GAAAGAAGCA AAACCAGGCA CAGCTGATGG GTTAACCAGA TATGATACAG AAAACATTTC CTTCTGCTTT TTGGTTTTAA GCCTATATTT GAAGCCTTAG ATCTCTCCAG CACAGTAAGC ACCAGGAGTC CATGAAGAAG ATG GATCTTCATG TGGAATGACT GGTTTCATTC AATAGACTTA ATTCAGCAGT CTGTGGGGAA GAGCAAGGTA TGATAGAATG GTTCCTCAAG TGCTTCAGAT GTGAAGTGGG TTTAAATATA CTGTCCCTGT CTTCTTCAGA GTTTTGGTAA AGATAAAATA GGACACTCAT TTAAAAGCAA TCTTTGCAAA TGACAAGCCA CTATAGACAT TAATAGAGTT TTCATTTCCA GTATTATCAT TAATATCAGA TCCTGGAAGA AGGTTGAGCC TTGACCTAGA GCAAAAAAAC AGAAGAATTA GTAAAGGAAT CCTGGAGAAA GCCCCTGCTG TGTATTTAAA GGAGAAAGGG AGATCATGTT GGGAAATTAT AATATTAAAA GTAAACAAAA GCTAGGAAGT AAAATAAAAT AAATTATATG GCCTAGATCC CCATAAGTAA TGGTTTAACT TCTGCCTTCC TGTGTTCTGA GCCAGATTAG GGCACAGTAG AGAAAGAGGA GTCTCTGAAA ATGTTTCCAA TTTCGCTGGT CAGACAGCGG ATCATCAGTG AATCAGATGA AAATTTGTGG ATTTATGCAC TAACTGATCA GCAGGAAATT AAACAAGAAA AGCGTTGGTA GCTCTGGTGA ATCCCAAAAG AATTTGGCAG TTGCTAGCCA TGCTCCTGAA TATGTATAAA CAGTACATCA TATGACTAAG AGTTTGACTT AGGGGTTAGA TTTTATGTGT TTGAACCCCA AATTAGTTAT TTAATAGTTG GCACCCCAAA ACAAGTTACT TAACCTCACT AAGATTCAGT TTTCCTGTTT ATAAAATGTA GATAGTGATA GTATGTACTT TATAGGATTA TTGTGAAAAA TAAATGAAAT ATCAGATTTA TTTAGGATAA CACCTGGCAT ATGTTTGGTA TTCAGTAATT AGTTGCTGCT GTTTTATTCT GCTCTCCCTT GCATCCCACT TTTCTAAGTT GTAAACTAAA TAGTTGTACA

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CACAAATTCT GACTGCTATG ATATGCCTTT GTTTTGGAAC AGTTGTCTGC TCTGTACTTG ATATTTCACA CATTGAGGGA
GACATTTTTT CATCATTTAA AGCAGGTTAT CCATTCTGGG GAGCCATATT TTTTTCTATT TCTGGAATGT TGTCAATTAT
ATCTGAAAGG AGAAATGCAA CATATCTGGT GAGAGGAAGC CTGGGAGCAA ACACTGCCAG CAGCATAGCT GGGGGAACGG
GAATTACCAT CCTGATCATC AACCTGAAGA AGAGCTTGGC CTATATCCAC ATCCACAGTT GCCAGAAATT TTTTGAGACC
AAGTGCTTTA TGGCTTCCTT TTCCACTGAA ATTGTAGTGA TGATGCTGTT TCTCACCATT CTGGGACTTG GTAGTGCTGT
GTCACTCACA ATCTGTGGAG CTGGGGAAGA ACTCAAAGGA AACAAGGTTC CAGAGGATCG TGTTTATGAA GAATTAAACA
TATATTCAGC TACTTACAGT GAGTTGGAAG ACCCAGGGGA AATGTCTCCT CCCATTGATT TATAAGAATC ACGTGTCCAG
AACACTCTGA TTCACAGCCA AGGATCCAGA AGGCCAAGGT CTTGTTAAGG GGCTACTGGA AAAATTTCTA TTCTCTCCAC
AGCCTGCTGG TTTT-3'(FRAG.NO:_)(SEQ ID NO:11872)
5'-AAGCTTTTCA AAGGTGCAAT TGGATAACTT CTGCCATGAG AAATGGCTGA ATTGGGACAC AAGTGGGGAC AATTCCAGAA
GAAGGGCACA TCTCTTTCTT TTCTGCAGTT CTTTCTCACC TTCTCAACTC CTACTAAAAT GTCTCATTTT CAGGTTCTGT
AAATCCTGCT AGTCTCAGGC AAAATTATGC TCCAGGAGTC TCAAATTTTC TTATTTCATA TTAGTCTTTA TTTAGTAGAC
TTCTCAATTT TTCTATTCAT CACAAGTAAA AGCCTGTTGA TCTTAATCAG CCAAGAAACT TATCTGTCTG GCAAATGACT
TATGTATAAA GAGAATCATC AATGTCATGA GGTAACCCAT TTCAACTGCC TATTCAGAGC ATGCAGTAAG AGGAAATCCA
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CAAATCTTGC TCTCCCACAG GAGCCTTCCA GGTAGGTACA AGGTATTATT TTTTTCTACC CTCAGTCACT TGTGGCAGGG
GAAGTCATAG TCACGGTGCT TAGGAGATGA AACTTTATTG ATTTAGGCAT GGATCCATCT AGTTTAATTA ATATATTGGG
TATGAGGAAG CTACTTGCTG TACTTTCCAT GTGGTTCTCT CTCCCTGGAG AGGAACATTT TTACTCAGCT TGCAAACTGG
AAATAGATTT TCTCACATTA GAAGCTCATT TTCTGGGTAT GAGACAGGAG AGTTCATACT GTGTATGTAG ATCTCTGGCT
TCTGGGTCTG ACATGTGCTG AGGGACACAT ATCCTTCACA CATGCTTTTA TAAATACTTG ATAAAGTAAC CTGCTTCTTG
ATTGGTCTTT ATAATCCATA AGCTGTGGGA TGCTTCTCTG AAGATGAAAA TAGTAATAGA GTCCCATCTA GCTATTCAAA
GCCATTCCTT CATTGTATTC TGTGCACATG AAGTTGGGGT TTGTTACTGA CAAAATATAT TCAGATACAT TTCTATGTTA
AAAGGATTGT GAGATGCATA GGTAAATGTG TTTATTTTCA GTTTTACTTG TCAACATAGA TGAATGAGAA AGAACTTGAA
AGTAACACTG GATTAAGAAT AGGAAAATTT GGCATGGATT TTGCTCCATT TTGTCCCATC TAATCACTTG GATAGTGTTC
AGGTGTTCTT GGTCAGTTAC TTGGATGCTC TGAGCTTTAG TTTCTTGGTG ATTACAATGA AGATTTGAAT TACAGGATGG
CTTTGAAAAA ATAAACAAAA CTCCCCTTTC TGTCTGTCGA GAATGTTGCA CAGGGAGTTA CAGAATGTTC TCATGACTGA
ATTGCTTTTA AATTTCACAG TGTGCCTGCA TTTGAAGTCT TGGAAATATC TCCCCAGGAA GTATCTTCAG GCAGACTATT
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CTCCTCCAAC TTTGACTAGA GTAAGGGTTG GGTCTAGAAA AGAATATTGA GTTGCATCAA CTGTTTTCCC ACTTGGATTC
ATGAGAGGTG TTAGGTCCTT TAAAAAACAT GGTAGATAAA GAGTTGACAC TAACTGGGTC CTTTTGGGAA GAGCCAGAAG
CATTTCCTCA TAAAGACTTT AAATTGCTAG GACGAGAATG GCCAACAGGA GTGAAGGATT CATAACTTTA TCTTTACTTA
GATGTAAAGA ACAATTACTG ATGTTCAACA TGACTACATA CATAAAGGCG CATGGAGAAA AGTATTGGCC TTCCATGCAT
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TAGGACACTA ACGCAGTTTC TCATGTTTGG CTTCTATTAT TAAAAAATGA TACAATCTCG GGAAAATTTT TTTGATTTTC
ATGAAATTCA TGTGTTTTTC TATAGGTAAC ACAAATTCTG ACTGCTATGA TATGCCTTTG TTTTGGAACA GTTGTCTGCT
CTGTACTTGA TATTTCACAC ATTGAGGGAG ACATTTTTTC ATCATTTAAA GCAGGTTATC CATTCTGGGG AGCCATATTT
GTGAGTATAT ATCTATAATT GTTTCTGAAA TAACACTGAA CATAGGTTTT TCTCTTTCTC AGATCTAACC AGTTGTTTAT
TCCCAGTATT AAGATGATAT TTATAATTCT TAATTATAAA TATATGTGAG CATATATAAC ATAGATATGC TCATTAACAA
CAACAAAAGA TTCTTTTTAC AATTAACGGT GGGTTAAACA TTTAGCCCAC AGTTTTATCC CATGAGAAAC CTGAATCTAA
TACAAGTTAA ATGACTTGCC TAAGGGCCAC TTGACTAATA GTAATTGAAC CTAAACTTTC AGAATCCAAC TCCAGGAACA
TACTTCTAGC ACTATTCATC AATAAAGTTA TATGATAAAT ACATACAACT TTATCTGTCA ACTAAAAATA ACAACAGAGG
CTGGGCATGG TGGCTCACAC CCGTAATCCC AGCACTTTGG GAGGCTGAGG CAGGTGGATC ACCTGAGGTC AGGAGTTTGA
GACCAGCCTG ACCAACATGG TGAAACCTCA TCTCTACTAA ATATAAAAAA TTAGCTGAGT GTGATAGTGC ATACCTGTAA
TCCAGCTACT TAAGAGGCTG AGGCAGGAGG CTTGTTTGAA CCTGGAAGGC AGAGGTTGCA GTGAGCTGAG ATTGTGCCAT
TGCACTCCAG CCTGGGCAAT AAGTGCGAAC TCTGTCTCAA AATAATAATA ATAATAATAG AAAATAAAGT TGTCTTCATG
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TATATACTTT TTAAAGGTCT AATTGACATA TATAAATTGC AAGTATTTCA GATGTCAATT TGCTAACCTT GACACACATA
GACACACATG AAAACATCAC CACATTAATA CAATGTATGT ATCCATCATT CCAAAAGCTT CCCTGTGTAT CTTTGTAACT
CTTTCTTCCT CCCTCCACTC CTTGTCCTCT CGTTCCCAAG AAAACATTGA TCTGCTTCCT GTGAATATAA ATTAACTTAC
ATTTTTTAGA GCTTTATATA AGTATGTTCT CTTTACTGTT TGTCTTCCTT CGCTGCACAG TTATTTTGAG ATTCTTCAAG
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AATCCTTAGT GCTCAGATGA CTTGTTCAGG ACTCTCCTTG AACCTGTACC TCTGTTANAT TGAAACTTGT CTCTACTGTC
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CCAAAATTTG GAAGCAATGT GGAATTTACT GGATGCATCC AGCCCTGAAA TGAAGATAGG TTTATTGAAT GTGCCAGCAA
GTGCAGGCCC AGGTCTGAGT GTTCTTCATT ATTATCAGGT GAGAGGAAGC CTGGGAGCAA ACACTGCCAG CAGCATAGCT
GGGGGAACGG GAATTACCAT CCTGATCATC AACCTGAAGA AGAGCTTGGC CTATATCCAC ATCCACAGTT GCCAGAAATT
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GGTTCCAGAT ACTTGGGAGG CTGAAGCAGG AGAATCGCTT GAGCCCAAGA GATGGAGGTT GCAGTGAGCC GAGATCATGC
CACTGCACCA CAGCCAGGGT GACAGAGCCA TACTTCCCAG CACATTGGGA GGCCAAAGCT GAAGAATAAT TTGAGGTGAG
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TGAAATGATT TTTCCCTTAT CAGGTTCCAG AGGATCGTGT TTATGAAGAA TTAAACATAT ATTCAGCTAC TTACAGTGAG
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TATTTTGAGA TAGAAGTGAA GCTAAGCTAA ACTTCACATG CCTATAATTG GAGGGAAAAA CTAAGGATAA AATCTAGCCT
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AAGAGAAAAT AAGTATCCAT CAGAGACAGT ATCTCTAGGC TTGGGCAAGA GAAAAGTCCA CAGTGATAAG CAACTCCACC
TAAGGCATGA ATATGCGGCA GAGAAAACAG CAATAGTGAA TGAATGCAAA AGGTGCTGAG CAAATTCCAC ACATGAGTAT
TGTGCATGAG TAAATGAATA AAACATTTGC AAAGACCTTT AGAGAAAGAG AATGGGAGCA TATGTGCGAA ATAAGATAGT
TGATTATGAA TAGAAGGTAG TGAAGAAAAG CAAGCTAAGA AAAAATTCTG TTTATAAAAG AAGGAAAAGA TAGTTTATGT
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TACATTTTAT GTATTGAGGA TGCCAAGATT AAAAGGTGAC AGGTAGATGT TAATTTCCCT AGATTGTGAA AGTGATCACG
ACAATCACAC AACAAATAAT TAAGTGACTT GGTATGCTTT ATTTAATTGT AGGGCCTGAG GTTTTCCATT CTCATTTTTC
TAAAATACAA TTTTGTTTCT CCAAATTTGA CAGCAGAATA AAAACCCTAC CCTTTCACTG TGTATCATGC TAAGCTGCAT
CTCTACTCTT GATCATCTGT AGGTATTAAT CACATCACTT CCATGGCATG GATGTTCACA TACAGACTCT TAACCCTGGT
TTACCAGGAC CTCTAGGAGT GGATCCAATC TATATCTTTA CAGTTGTATA GTATATGATA TCTCTTTTAT TTCACTCAAT
TTATATTTTC ATCATTGACT ACATATTTCT TATACACAAC ACACAATTTA TGAATTTTTT CTCAAGATCA TTCTGAGAGT
TGCCCCACCC TACCTGCCTT TTATAGTACG CCCACCTCAG GCAGACACAG AGCACAATGC TGGGGTTCTC TTCACACTAT
CACTGCCCCA AATTGTCTTT CTAAATTTCA ACTTCAATGT CATCTTCTCC ATGAAGACCA CTGAATGAAC ACCTTTTCAT
CCAGCCTTAA TTTCTTGCTC CATAACTACT CTATCCCACG ATGCAGTATT GTATCATTAA TTATTAGTGT GCTTGTGACC
TCCTTATGTA TTCTCAATTA CCTGTATTTG TGCAATAAAT TGGAATAATG TAACTTGATT TCTTATCTGT GTTTGTGTTG
GCATGCAAGA TTTAGGTACT TATCAAGATA ATGGGGAATT AAGGCATCAA TAAAATGATG CCAAAGACCA AGAGCAGTTT
CTGAAGTCCT CCTTTTCATC AGCTCTTTAT CAAACAGAAC ACTCTATAAA CAACCCATAG CCAGAAAACA GGATGTAGGA
ACAATCACCA GCACACTCTA TAAACAACCC ATAGCCAGAA AACAGAATGT AAGGACAATC ACCAGCCATC TTTTGTCAAT
AATTGATGGA ATAGAGTTGA AAGGAACTGG AGCATGAGTC ATATTTGACC AGTCAGTCCT CACTCTTATT TACTTGCTAT
GTAAACTTGA GAAAGCTTTT TTCTCTTTGT GAACCTCAGG TTTTACATCT GAAAATGAGA AATTTGGAAC AAAAGATTCC
TAACTGGTCT TTCTGTTCCC ATATTCTGTG ATTTTTCAAT ATTTAGGATT TTTGGTAATC ACAATTACTT AGTTTGTGGT
TGAGATAGCA ACACGAATCA GAACTATTTG GTGGACATAT TTTCAAAGGA GTAGCTCTCC ACTTTGGGTA AAGAAGTGAT
GCNGGTCGTG GTGGCTCACG CCTGTAATCC CAGCACTTTA GGGAGGCCAA GGCGGGTGGA TCACGAGGTC AGGAGATCGA
GACCATCCTG GCTAACACGG TGAAACCCCG TCTCTACTAA AAAATACAAA AAATTAGCCA GGCGTGGTGG CGGGCGCCTG
TAGTCCCACG TACTCGGGAG GCTGAGGCAG GAGAATGGCA TGAACCAGGG AGGCGGAGCT TGCCGTGAGC CGAGATAGCG
CCACTGCAGT CCCTCCTGGG CAAAAGAGCA AGACTGCGTC TCAAAAAAAA AAAAAAAAAA AAAAAAAGAA GTGTGTGGAG
TAGCAGGACA CCTGCAACAA TAATATTTTT CTAAATCCCT CTGAAAAATG CTAATCAAAG GGTTTTTTTC CTAAAAATTG
TCTTAGAAAT AAAATTTCCC CTTTGGGAGA CCGAGGCTGG CAGATCACGA GGTCAGGAGA TAGAGACCAC GGTGAAACCC

CGTCTCTACT AAAAATACTA AAAATTAGCC GGGGNGTGGT GGTGGGTACA CCTGTAGTCC CAGCTACTTG GAGGCTGAGG CTGGAGAATC ACGTGAAC-3' (FRAG. NO:_)(SEQ ID NO:11873)

Human Histidine Decarboxylase Nucleic Acid and Antisense Oligonucleotide Fragments

5'-TCT CCC TTG GGC TCT GGC TCC TTC TC TCT CTC TCC CTC TCT CTC TGT CGC CTC CGC CCT GGC TGC TGG GGT GGT GGT GC TTT TGT TCT TCC TTG CTG CC GCC CCG CTG CTT GTC T TC CTC G CTC TGT CCC TCT CTC TCT GTB CTC CTC BGG CTC CBT CBT CTC CCT TGG GC-3'(FRAG. NO:1700) (SEQ ID NO:11082)
5'-GGC TCT GGC (FRAG. NO:1701) (SEQ ID NO:11083)
5'-CCC TTG G (FRAG. NO:1702) (SEQ ID NO:11084)
5'- TT TGT TCT TCC (FRAG. NO:1703) (SEQ ID NO:11085)
5'- TCT CCC TTG GGC TCT GGC TCC TTC TC-3' (FRAG. NO:1024) (SEQ ID NO:10403)
5'- TCT CTC TCC CTC TCT CTC TGT -3' (FRAG. NO:1025) (SEQ ID NO:10404)
5'- CGC CTC CGC CCT GGC TGC TGG GGT GGT GGT GC-3' (FRAG. NO:1026) (SEQ ID NO:10405)
5'- TTT TGT TCT TCC TTG CTG CC-3' (FRAG. NO:1027) (SEQ ID NO:10406)
5'- GCC CCG CTG CTT GTC T TC CTC G-3' (FRAG. NO:1028) (SEQ ID NO:10407)
5'-CTC TGT CCC TCT CTC TCT GTB CTC CTC BGG CTC CBT CBT CTC CCT TGG GC (FRAG.NO:1029)(SEQ ID NO:10408)

Human Beta Tryptase Nucleic Acid and Antisense Oligonucleotide Fragments

5'-CTT GCT CCT GGG GGC CTC CTG GTC CCT CCG GGT GTT CCC GGC GGG CCT GGC CTG GGG CBG GGG CCG CGT BGG CGC GGC TCG CCB GGB CGG GCB GCG CCB GCB GCB GCB GBT TCB GCB TCC TGG-3' (FRAG. NO:1704) (SEQ ID NO:11086)
5'- GCT CCT GGG GGC CT-3' (FRAG. NO:1705) (SEQ ID NO:11087)
5'-CGT BGG CGC-3' (FRAG. NO:1706) (SEQ ID NO:11088)
5'-T GGC CTG GGG-3' (FRAG. NO:1707) (SEQ ID NO:11089)
5'-CTT GCT CCT GGG GGC CTC CTG-3' (FRAG. NO:1030) (SEQ ID NO:10409)
5'-GTC CCT CCG GGT GTT CCC GGC-3' (FRAG. NO:1031) (SEQ ID NO:10410)
5'-GGG CCT GGC CTG GGG CBG GGG CCG CGT BGG CGC GGC TCG CCB GGB CGG GCB GCG CCB GCB GCB GCB GBT TCB GCB TCC TGG-3' (FRAG. NO:1032) (SEQ ID NO:10411)

Human Tryptase-I Nucleic Acid and Antisense Oligonucleotide Fragments

5'-CTT GCT CCT GGG GGC CTC CTG GTC CCT CTG GCT G TT CCC GGC CCT GGB CTG GGG CBG GGG CCG CGT BGG CGC GGC TCG CCB GGB CGG GCB GCG CCB GCB GCB GCB GGC TCB GCB TCC TGG CCB CGG BBT TCC-3' (FRAG. NO: 1708) (SEQ ID NO:11090)
5'-CT CCT GGG GGC CTC CTG-3' (FRAG. NO:1709) (SEQ ID NO:11091)
5'-B TCC TGG CCB CGG BBT TCC -3' (FRAG. NO:1710) (SEQ ID NO:11092)
5'-GTC CCT C-3' (FRAG. NO:1711) (SEQ ID NO:11093)
5'-CTT GCT CCT GGG GGC CTC CTG-3' (FRAG. NO:1033) (SEQ ID NO:10412)
5'-GTC CCT CTG GCT G TT CCC GGC-3' (FRAG. NO:1034) (SEQ ID NO:10413)
5'-CCT GGB CTG GGG CBG GGG CCG CGT BGG CGC GGC TCG CCB GGB CGG GCB GCG CCB GCB GCB GCB GGC TCB GCB TCC TGG CCB CGG BBT TCC -3' (FRAG. NO:1035) (SEQ ID NO:10414)

Human Prostaglandin D Synthase Nucleic Acid and Antisense Oligonucleotide Fragments

5'-GGT GTG CGG GGC CTG GTG CC CCT GGG CCT CGG GTG CTG CCT GT GCG CTG CCT TCT TCT CCT GG GTC CTC GCC GGG GCC CTT GCT GCC CTG GCT GT GCC CTG GGG GTC TGG GTT CGG CTG T CCC CBG CBG GBC CBG TCC CBT CCB CBG CGT GTG BTG BGT BGC CBT TCT CCT GCB GCC GBG-3'(FRAG.NO:1712)(SEQ ID NO:11094)
5'-T TCT CCT GCB GCC GBG -3' (FRAG. NO:1713) (SEQ ID NO:11095)
5'-CTT GCT GCC CTG GCT GT-3' (FRAG. NO:1714) (SEQ ID NO:11096)
5'- TCT TCT CCT GG-3' (FRAG. NO:1715) (SEQ ID NO:11097)
5'-GGT GTG CGG GGC CTG GTG CC-3' (FRAG. NO:1036) (SEQ ID NO:10415)
5'-CCT GGG CCT CGG GTG CTG CCT GT-3' (FRAG. NO:1037) (SEQ ID NO:10416)
5'-GCG CTG CCT TCT TCT CCT GG-3' (FRAG. NO:1038) (SEQ ID NO:10417)
5'-GTC CTC GCC GGG GCC CTT GCT GCC CTG GCT GT-3' (FRAG. NO:1039) (SEQ ID NO:10418)
5'-GCC CTG GGG GTC TGG GTT CGG CTG T-3' (FRAG. NO:1040) (SEQ ID NO:10419)
5'-CCC CBG CBG GBC CBG TCC CBT CCB CBG CGT GTG BTG BGT BGC CBT TCT CCT GCB GCC GBG -3' (FRAG. NO:1041) (SEQ ID NO:10420)

Human Cyclooxygenase-2 Nucleic Acid and Antisense Oligonucleotide Fragments

5'-GGG CGC GGG CGB GCB TCG C TTT GGG CTT TTC TCC TTT GGT T TGB GCG CCB GGB CCG CGC BCB GCB GCB GGG CGC GGG CGB GCB TCG CBG CGG CGG GCB GGG-3' (FRAG. NO: 1716) (SEQ ID NO:11098)
5'-G GCB GGG -3' (FRAG. NO: 1717) (SEQ ID NO:11099)
5'-TCC TTT GGT T-3' (FRAG. NO:1718) (SEQ ID NO:11100)
5'- GGG CGC GGG CGB GCB TCG C-3' (FRAG. NO:1042) (SEQ ID NO:10421)
5'- TTT GGG CTT TTC TCC TTT GGT T-3' (FRAG. NO:1043) (SEQ ID NO:10422)
5'-TGB GCG CCB GGB CCG CGC BCB GCB GCB GGG CGC GGG CGB GCB TCG CBG CGG CGG GCB GGG -3' (FRAG. NO:1044) (SEQ ID NO:10423)

Human Eosinophil Cationic Protein Nucleic Acid and Antisense Oligonucleotide Fragments

5'-CCT CCT TCC TGG TCT GTC TGC CBG BCB BBT TTG GGB BGT GBB CBG TTT TGG BBC CBT GTT TCC CBG TCT CTG BGC TGT GGC-3' (FRAG. NO: 1719) (SEQ ID NO:11101)
5'-TTC TCC TTT GGT T-3' (FRAG. NO:1720) (SEQ ID NO:11102)
5'-T TTC TCC TTT GGT T-3' (FRAG. NO:1721) (SEQ ID NO:11103)
5'- GGG CGC GGG CGB GCB TCG C-3' (FRAG. NO:1042) (SEQ ID NO:10421)
5'- TTT GGG CTT TTC TCC TTT GGT T-3' (FRAG. NO:1043) (SEQ ID NO:10422)
5'-TGB GCG CCB GGB CCG CGC BCB GCB GCB GGG CGC GGG CGB GCB TCG CBG CGG CGG GCB GGG -3' (FRAG. NO:1044) (SEQ ID NO:10423)

Human Eosinophil Derived Neurotoxin Nucleic Acid and Antisense Oligonucleotide Fragments

5'-GCC CTG CTG CTC TTT CTG CT TCC CTT GGT GGG TTG GGC C GCT GGT TGT TCT GGG GTT C TTG CTG CCC CTT CTG TCC C TGT TTG CTG GTG TCT GCG C 5'- CCC CBB CBG BBG BBG CBG BCB BBT TTG GGB BGT GBB CBG TTT TGG BBC CBT GTT TCC TGT-3' (FRAG. NO: 1722) (SEQ ID NO:11104)
5'-TTC CTG T-3' (FRAG. NO:1723) (SEQ ID NO:11105)

5'-CTC TTT CTG CT-3' (FRAG. NO: 1724) (SEQ ID NO:11106)
5'-CCC CTT CTG TCC C-3' (FRAG. NO:1725) (SEQ ID NO:11107)
5'- GCC CTG CTG CTC TTT CTG CT-3' (FRAG. NO:1047) (SEQ ID NO:10424)
5'- TCC CTT GGT GGG TTG GGC C-3' (FRAG. NO:1048) (SEQ ID NO:10425)
5'- GCT GGT TGT TCT GGG GTT C-3' (FRAG. NO:1049) (SEQ ID NO:10427)
5'- TTG CTG CCC CTT CTG TCC C-3' (FRAG. NO:1050) (SEQ ID NO:10426)
5'- TGT TTG CTG GTG TCT GCG C -3' (FRAG. NO:1051) (SEQ ID NO:10428)
5'- CCC CBB CBG BBG BBG CBG BCB BBT TTG GGB BGT GBB CBG TTT TGG BBC CBT GTT TCC TGT-3' (FRAG. NO:1052) (SEQ ID NO:10429)

Human Eosinophil Peroxidase Nucleic Acid and Antisense Oligonucleotide Fragments

5'-GCG CTC GGC CTG GTC CCG G GGG TCT CCT CTT GTT GTT GC TTG CGC CTC CTG CTG GGG GT CC CTC TGT TCT TGT TTT
GGG GGC GGG CCC GGC CGT TGT CTT G GTT TGG GGG TTT CCG TTG GGG TTC TCC TGG CCC GGG CCT TGC CC GGC CGT
GGT CCC GGC TTC GTTCCT GTC TCC GTC TCG GCT CTT CTG GGG CCT TGC GCT GTC TTT GGT G 5'-GCB CCG TCC BGT GBT
GGT GCG GTB CTT GTC GCT GCB GCG CTC GGC CTG GTC CCG GBG BGC CACCGCTCCT GTCAGCCAAC AAATATCCAT
TGAGCGACAC CTGTGTCCCA GGTGCTGCTC TGGGCCCTGG GAGAAGTGCA TCAGTGGGCT TGGTAGTAGA GGGTAGGGAT
GGAGTGAAGG GTAGGCAGGA AGAATGTCCC CAGGCTGGTA GGAGGTGGGG TGGGGGGTTT CAGTCTCAAA ACTCCCATGA
AAACCAGAGA GAAGTTTCAG AACTCCACCC AAGAGGCTGG GTTTCTAGGG CCCAGAGCTG CCCTCCCCCA CCCTAGAATG
GGCTATAAAA GTCCCTTCCC AGCTACGTCC AGAGAAGAGC TGGAGGAAGT GAGAGGTCGG CTGGGGGTCC TCAAAGTGAG
AGGGGAGCAG AGGATCCTCC CGTGCAGGCT GTGGATGTCA CTCACTTCCC AGCTGGTGAA GCCTCGCTGC AGAGATGCAT
CTGCTCCCAG CCCTGGCAGG GGTCCTGGCC ACACTCGTCC TCGCCCAGCC CTGTGAGGGC ACTGACCCAG GTAATAGTCC
CCTAGACAGG CAAGGAGGAG GGAGGGGAAA TGGAAGGGGA AGCACTTGGG TCTTGGAGGG GGTCTTGTGG CTTGCTGAAC
CCTGAGTCCC CATCTCTTTG AACAGCCTCC CCTGGGGCAG TGGAGACCTC GGTCCTGCGA GACTGCATAG CAGAGGCCAA
GTTGCTGGTG GATGCTGCCT ACAATTGGAC CCAGAAGAGG TGGACTTGGG TCTGGGGGCT GCATGGGCCT GGGAGGATCA GT
TAATACCTTG TGGGGTCAGG GAGCCCATGT CCCGTGCTGA TGTTATTTCC CCACCAGGTC CGGGCTGTCT CCAACCAGAT
TGTGCGCTTC CCCAATGAGA GACTGACCTC CGACCGTGGC CGAGCCCTCA TGTTCATGCA GTGGGGCCAG TTCATTGACC
ATGACCTGGA CTTCTCCCCG GAGTCCCCGG CCAGAGTGGC CTTCACTGCA GGCGTTGACT GTGAGAGGAC CTGCGCCCAG
CTGCCCCCCT GCTTTCCCAT CAAGGTACCT ACCCTCAGCC AATCTCCCAT GCCCTTGTGT GGCCTCCCCC AAAGGCAAGG
TGCTGGGGGT GGGGATCTGG AAGACTGGAG CACCATCCTT AAGGAGCTGC CTGTGGAGCT AGGGTATGAG ACAGAGACAC
AAG CACTGTCTCC TCTTCCATCT CAGATCCCAC CCAATGACCC CCGCATCAAG AACCAGCGTG ACTGCATCCC TTTCTTCCGC
TCGGCACCCT CATGCCCCCA AAACAAGAAC AGAGTCCGCA ACCAGATCAA CGCGCTCACC TCCTTTGTGG ACGCCAGCAT
GGTGTATGGC AGTGAGGTCT CCCTCTCGCT GCGGCTCCGC AACCGGACCA ACTACCTGGG GCTGCTGGCC ATCAACCAGC
GCTTTCAAGA CAACGGCCGG GCCCTGCTGC CCTTCGACAA CCTGCACGAT GACCCCTGTC TCCTCACCAA CCGCTCGGCG
CGCATCCCCT GCTTCCTGGC AGGTCAGACA GGGAGGAAGG TGGTGTCTTC CCAGGAAACA GCCATCCCTG GGGTCCCAAC
TGGGAAGCAA TGGTGGGATG TGGTGAAGGT ACATGGTTTG GGACCTCAGT ATTAGGCACA CCATAAGCAT GGATCTGTGC AC
TGAAGAGATG GAGGTCCAGT GAGGGCCAGG AGTTTGGCCC ACCCCGTCTC TCCCATCCCC AGCCCTGGGT CTACCCTGGT
AGAAAGACAT TTCTCTGGGA AAGGCTGCAG TAAATCTGAG CTTGGGGTTT TCAAGGTGAC ACCCGATCAA CGGAAACCCC
CAAACTGGCA GCCATGCACA CCCTCTTTAT GCGAGAGCAC AACCGGCTGG CCACCGAGCT GAGACGCCTG AATCCCCGGT
GGAATGGAGA CAAACTGTAC AATGAGGCTC GGAAGATCAT GGGGGCCATG GTCCAGGTAA GGAGCTCTGC ATCCCAGCAT
CCCCC CTTTGTATCT CCACCCACCA ATAGTAAATT AATGTTGTCA CATTTGACGT GATGACAATA AAGAATATGT
CTGAGCCACC CTTTGAAAAG GCAAGGGTAT GGGTGAGTAG CCTCTGGGGA ATGTTCCTCC TGTCTTCCCT TCCAGATCAT
CACCTACCGA GACTTTCTGC CCCTGGTTCT GGGCAAGGCC CGGGCCAGGA GAACCCTGGG GCACTACAGG GGGTACTGCT
CCAATGTGGA CCCACGGGTG GCCAATGTCT TCACCCTGGC CTTCCGCTTT GGCCACACAA TGCTCCAGCC CTTCATGTTC
CGCTTGGACA GTCAGTACCG GGCCTCCGCA CCCAACTCGC ATGTCCCACT TAGCTCTGCC TTCTTTGCCA GCTGGCGGAT
CGTGTATGAA GGTGACCAGG TTTTCCAGGG GGCAAATGGG GGTGAGGGTG GGGAGCATGC CCTCCCCTAG GTGG
TCCAGCTGCT TCATGTCTCT CCAGAACTCT GTTTCCTGAC AAACGTTACT AACATACCCG ACTGGCTTGT CCAGCTCTGG
GCTAGCTTGG CATCATGTGA TAACCCAAGT AGCTTCCCAG AGGCTGGTCC AATCTGTGCT GCTCACATTC CCTGCCACCA
GGGGGCATCG ACCCCATCCT CCGGGGCCTC ATGGCCACCC CTGCCAAGCT GAACCGTCAG GATGCCATGT TAGTGGATGA
GCTCCGGGAC CGGCTGTTTC GGCAAGTGAG GAGGATTGGG CTGGACCTGG CAGCTCTCAA CATGCAACGA AGCCGGGACC
ACGGCCTTCC AGGTGAGGGG GCTGTCCACC TCTTCTCCCA GCTTTGCTCG GGCCAGGCTG CTCAAGGGGT TCTGGGAAGA
CCCTGGTACC CGACTGCCTG GTAGGTTCTG GTGGCAGAAA CGAGGTGTTT TCACCAAAAG ACAGCGCAAG GCCCTGAGCA
GAATTTCCTT GTCTCGAATT ATATGTGACA ATACCGGTAT CACCACGGTT TCAAGGGACA TCTTCAGAGC CAACATCTAC
CCTCGGGGCT TTGTGAACTG CAGCCGTATC CCCAGGTTGA ACCTATCAGC CTGGCGAGGG ACATGAGGCT TCTGCAGGTA
AGGGGAGGCC ACCTCCAGCA CCCTGGGCTG GTTAAGCCTC ACATCCTTCC CTGGATGGAT GGCTGAGTCC TCTTAGGTCT
CTAAGCAGAG AAAACAGAAC TTGTCACTAG GTACTCTTTC CAAGTGGCTT CCCAATGTGC TAGTTTCTGG GCTGACAGTC
AATTCCAGGC CCTAGGACTT TGGGGGGAAA TTAGGAGCAT CCAACTA GAATTCCGTG GCCAGGACCC CTGCCAGGGC
ACTGACCCAG CCTCCCCTGG GGCAGTGGAG ACCTCGGTCC TGCGAGACTG CATAGCAGAG GCCAAGTTGC TGGTGGATGC
TGCCTACAAT TGGACCCAGA AGAGCATCAA GCAGCGGCTT CGCAGCGGTT CAGCCAGCCC CATGGACCTC CTGTCCTACT
TCAAACAACC GGTAGCAGCC ACCAGGACAG TTGTTCGGGC CGCAGATTAT ATGCATGTGG CTTTGGGGCT GCTTGAAGAG
AAGTTACAAC CCCAGCGGTC CGGACCCTTC ATTGTCACTG ATGTGCTAAC AGAACCACAG CTGCGGCTGC TGTCCCAGGC
CAGTGGCTGT GCTCTCCGGG ACCAGGCCGA GCGCTGCAGC GACAAGTACC GCACCATCAC TGGACGGTGC AACAACAAGA
GGAGACCCTT GCTAGGGGCC TCCAACCAGG CTCTGGCTCG CTGGCTGCCC GCCGAGTATG AGGATGGGCT GTCGCTCCCC
TTCGGCTGGA CCCCCAGCAG GAGGCGCAAT GGCTTCCTTC TCCCTCTTGT CCGGGCTGTC TCCAACCAGA TTGTGCGCTT
CCCCAATGAG AGACTGACCT CCGACCGTGG CCGAGCCCTC ATGTTCATGC AGTGGGGCCA GTTCATTGAC CATGACCTGG
ACTTCTCCCC GGAGTCCCCG GCCAGAGTGG CCTTCACTGC AGGCGTTGAC TGTGAGAGGA CCTGCGCCCA GCTGCCCCCC
TGCTTTCCCA TCAAGATCCC ACCCAATGAC CCCCGCATCA AGAACCAGCG TGACTGCATC CCTTTCTTCC GCTCGGCACC
CTCATGCCCC CAAAACAAGA ACAGAGTCCG CAACCAGATC AACGCGCTCA CCTCCTTTGT GGACGCCAGC ATGGTGTATG
GCAGTGAGGT CTCCCTCTCG CTGCGGCTCC GCAACCGGAC CAACTACCTG GGGCTGCTGG CCATCAACCA GCGCTTTCAA
GACAACGGCC GGGCCCTGCT GCCCTTCGAC AACCTGCACG ATGACCCCTG TCTCCTCACC AACCGCTCGG CGCGCATCCC
CTGCTTCCTG GCAGGTGACA CCCGATCAAC GGAAACCCCC AAACTGGCAG CCATGCACAC CCTCTTTATG CGAGAGCACA
ACCGGCTGGC CACCGAGCTG AGACGCCTGA ATCCCCGGTG GAATGGAGAC AAACTGTACA ATGAGGCTCG GAAGATCATG
GGGGCCATGG TCCAGATCAT CACCTACCGA GACTTTCTGC CCCTGGTTCT GGGCAAGGCC CGGGCCAGGA GAACCCTGGG
GCACTACAGG GGGTACTGCT CCAATGTGGA CCCACGGGTG GCCAATGTCT TCACCCTGGC CTTCCGCTTT GGCCACACAA
TGCTCCAGCC CTTCATGTTC CGCTTGGACA GTCAGTACCG GGCCTCCGCA CCCAACTCGC ATGTCCCACT TAGCTCTGCC
TTCTTTGCCA GCTGGCGGAT CGTGTATGAA GGGGGCATCG ACCCCATCCT CCGGGGCCTC ATGGCCACCC CTGCCAAGCT
GAACCGTCAG GATGCCATGT TAGTGGATGA GCTCCGGGAC CGGCTGTTTC GGCAAGTGAG GAGGATTGGG CTGGACCTGG

CAGCTCTCAA CATGCAACGA AGCCGGGACC ACGGCCTTCC AGGGTACAAT GCTTGGAGGC GCTTCTGTGG GCTCTCCCAG
CCCCGGAATT TGGCACAGCT TAGCCGGGTG CTGAAAAACC AGGACTTGGC AAGGAAGTTC CTGAATTTGT ATGGAACACC
TGACAACATT GACATCTGGA TTGGGGCCAT CGCTGAGCCT CTTTTGCCGG GGGCTCGAGT GGGGCCTCTT CTGGCTTGTC
TGTTCGAGAA CCAGTTCAGA AGAGCCGAGA CGGAGACAGG TTCTGGTGGC AGAACGAGGT GTTTTCACCA AAGACAGCGC
AAGGCCCTGA GCAGAATTTC CTTGTCTCGA ATTATATGTG ACAATACCGG TATCACCACG GTTTCAAGGG ACATCTTCAG
AGCCAACATC TACCCTCGGG GCTTTGTGAA CTGCAGCCGT ATCCCCAGGT TGAACCTATC AGCCTGGCGA GGGACATGAG
GCTTCTGCAG GAGTCTATCC CAAGTCTCCA ACTTTTGGAG ACAAGGGGAA GGGGAGGACC ATGAGGCTGC CTTGTCTCCC
TGGAGCAAGT GCAGGCTCGT GACGCTTCTG CTGGCTACAG CTCAGAGCTG GGTTCCCCAG CCAGGAGTGA AGGCTGGGGG
CTCCTATCAG CAATGGACCT TCCGCCTTGG GAGCCTCTTA GGTATTAGGC TATGAATCAG CGCCACGTGC AAAGGCTTGG
GAGCCAAGCC ATGTGGTCTT GCACCCCAGG CAAGAAAAGT CAGCTGGAGG GTTTACAGCA CTTTCTACTG TTTCCCAGCC
CTCCCTCCCC TCCCTCACCA TGACTAAGAG ACCACTCGGT CCTAGCCTCC AGACACCCCA CAATACTCCT CTGAGCCTGA
GGCCAGGCAG CATGCTCTGC TTCTACCAAT AAAGCACTGC CGGAATTC-3' (FRAG. NO: 1726) (SEQ ID NO:12377)

5'-CACCGCTCCT GTCAGCCAAC AAATATCCAT TGAGCGACAC CTGTGTCCCA GGTGCTGCTC TGGGCCCTGG GAGAAGTGCA
TCAGTGGGCT TGGTAGTAGA GGGTAGGGAT GGAGTGAAGG GTAGGCAGGA AGAATGTCCC CAGGCTGGTA GGAGGTGGGG
TGGGGGGTTT CAGTCTCAAA ACTCCCATGA AAACCAGAGA GAAGTTTCAG AACTCCACCC AAGAGGCTGG GTTTCTAGGG
CCCAGAGCTG CCCTCCCCCA CCCTAGAATG GGCTATAAAA GTCCCTTCCC AGCTACGTCC AGAGAAGAGC TGGAGGAAGT
GAGAGGTCGG CTGGGGGTCC TCAAAGTGAG AGGGGAGCAG AGGATCCTCC CGTGCAGGCT GTGGATGTCA CTCACTTCCC
AGCTGGTGAA GCCTCGCTGC AGAGATGCAT CTGCTCCCAG CCCTGGCAGG GGTCCTGGCC ACACTCGTCC TCGCCCAGCC
CTGTGAGGGC ACTGACCCAG GTAATAGTCC CCTAGACAGG CAAGGAGGAG GGAGGGGAAA TGGAAGGGGA AGCACTTGGG
TCTTGGAGGG GGTCTTGTGG CTTGCTGAAC CCTGAGTCCC CATCTCTTTG AACAGCCTCC CCTGGGGCAG TGGAGACCTC
GGTCCTGCGA GACTGCATAG CAGAGGCCAA GTTGCTGGTG GATGCTGCCT ACAATTGGAC CCAGAAGAGG TGGACTTGGG
TCTGGGGGCT GCATGGGCCT GGGAGGATCA GT-3' (FRAG. NO:_)(SEQ ID NO:11852)

5'-TAATACCTTG TGGGGTCAGG GAGCCCATGT CCCGTGCTGA TGTTATTTCC CCACCAGGTC CGGGCTGTCT CCAACCAGAT
TGTGCGCTTC CCCAATGAGA GACTGACCTC CGACCGTGGC CGAGCCCTCA TGTTCATGCA GTGGGGCCAG TTCATTGACC
ATGACCTGGA CTTCTCCCCG GAGTCCCCGG CCAGAGTGGC CTTCACTGCA GGCGTTGACT GTGAGAGGAC CTGCGCCCAG
CTGCCCCCCT GCTTTCCCAT CAAGGTACCT ACCCTCAGCC AATCTCCCAT GCCCTTGTGT GGCCTCCCCC AAAGGCAAGG
TGCTGGGGGT GGGGATCTGG AAGACTGGAG CACCATCCTT AAGGAGCTGC CTGTGGAGCT AGGGTATGAG ACAGAGACAC
AAG-3' (FRAG.NO:_)(SEQ ID NO:11853)

5'-CACTGTCTCC TCTTCCATCT CAGATCCCAC CCAATGACCC CCGCATCAAG AACCAGCGTG ACTGCATCCC TTTCTTCCGC
TCGGCACCCT CATGCCCCCA AAACAAGAAC AGAGTCCGCA ACCAGATCAA CGCGCTCACC TCCTTTGTGG ACGCCAGCAT
GGTGTATGGC AGTGAGGTCT CCCTCTCGCT GCGGCTCCGC AACCGGACCA ACTACCTGGG GCTGCTGGCC ATCAACCAGC
GCTTTCAAGA CAACGGCCGG GCCCTGCTGC CCTTCGACAA CCTGCACGAT GACCCCTGTC TCCTCACCAA CCGCTCGGCG
CGCATCCCCT GCTTCCTGGC AGGTCAGACA GGGAGGAAGG TGGTGTCTTC CCAGGAAACA GCCATCCCTG GGGTCCCAAC
TGGGAAGCAA TGGTGGGATG TGGTGAAGGT ACATGGTTTG GGACCTCAGT ATTAGGCACA CCATAAGCAT GGATCTGTGC AC-3'
(FRAG.NO:_)(SEQ ID NO:11854)

5'-TGAAGAGATG GAGGTCCAGT GAGGGCCAGG AGTTTGGCCC ACCCCGTCTC TCCCATCCCC AGCCCTGGGT CTACCCTGGT
AGAAAGACAT TTCTCTGGGA AAGGCTGCAG TAAATCTGAG CTTGGGGTTT TCAAGGTGAC ACCCGATCAA CGGAAACCCC
CAAACTGGCA GCCATGCACA CCCTCTTTAT GCGAGAGCAC AACCGGCTGG CCACCGAGCT GAGACGCCTG AATCCCCGGT
GGAATGGAGA CAAACTGTAC AATGAGGCTC GGAAGATCAT GGGGGCCATG GTCCAGGTAA GGAGCTCTGC ATCCCAGCAT
CCCCC-3' (FRAG.NO:_)(SEQ ID NO:11855)

5'-CTTTGTATCT CCACCCACCA ATAGTAAATT AATGTTGTCA CATTTGACGT GATGACAATA AAGAATATGT CTGAGCCACC
CTTTGAAAAG GCAAGGGTAT GGGTGAGTAG CCTCTGGGGA ATGTTCCTCC TGTCTTCCCT TCCAGATCAT CACCTACCGA
GACTTTCTGC CCCTGGTTCT GGGCAAGGCC CGGGCCAGGA GAACCCTGGG GCACTACAGG GGGTACTGCT CCAATGTGGA
CCCACGGGTG GCCAATGTCT TCACCCTGGC CTTCCGCTTT GGCCACACAA TGCTCCAGCC CTTCATGTTC CGCTTGGACA
GTCAGTACCG GGCCTCCGCA CCCAACTCGC ATGTCCCACT TAGCTCTGCC TTCTTTGCCA GCTGGCGGAT CGTGTATGAA
GGTGACCAGG TTTTCCAGGG GGCAAATGGG GGTGAGGGTG GGGAGCATGC CCTCCCCTAG GTGG-3' (FRAG.NO:_)(SEQ ID
NO:11856)

5'-TCCAGCTGCT TCATGTCTCT CCAGAACTCT GTTTCCTGAC AAACGTTACT AACATACCCG ACTGGCTTGT CCAGCTCTGG
GCTAGCTTGG CATCATGTGA TAACCCAAGT AGCTTCCCAG AGGCTGGTCC AATCTGTGCT GCTCACATTC CCTGCCACCA
GGGGGCATCG ACCCCATCCT CCGGGGCCTC ATGGCCACCC CTGCCAAGCT GAACCGTCAG GATGCCATGT TAGTGGATGA
GCTCCGGGAC CGGCTGTTTC GGCAAGTGAG GAGGATTGGG CTGGACCTGG CAGCTCTCAA CATGCAACGA AGCCGGGACC
ACGGCCTTCC AGGTGAGGGG GCTGTCCACC TCTTCTCCCA GCTTTGCTCG GGCCAGGCTG CTCAAGGGGT TCTGGGAAGA
CCCTGGTACC-3' (FRAG.NO:_)(SEQ ID NO:11857)

5'-CGACTGCCTG GTAGGTTCTG GTGGCAGAAA CGAGGTGTTT TCACCAAAAG ACAGCGCAAG GCCCTGAGCA GAATTTCCTT
GTCTCGAATT ATATGTGACA ATACCGGTAT CACCACGGTT TCAAGGGACA TCTTCAGAGC CAACATCTAC CCTCGGGGCT
TTGTGAACTG CAGCCGTATC CCCAGGTTGA ACCTATCAGC CTGGCGAGGG ACATGAGGCT TCTGCAGGTA AGGGGAGGCC
ACCTCCAGCA CCCTGGGCTG GTTAAGCCTC ACATCCTTCC CTGGATGGAT GGCTGAGTCC TCTTAGGTCT CTAAGCAGAG
AAAACAGAAC TTGTCACTAG GTACTCTTTC CAAGTGGCTT CCCAATGTGC TAGTTTCTGG GCTGACAGTC AATTCCAGGC
CCTAGGACTT TGGGGGGAAA TTAGGAGCAT CCAACTA-3' (FRAG.NO:_)(SEQ ID NO:11858)

5'-GAATTCCGTG GCCAGGACCC CTGCCAGGGC ACTGACCCAG CCTCCCCTGG GGCAGTGGAG ACCTCGGTCC TGCGAGACTG
CATAGCAGAG GCCAAGTTGC TGGTGGATGC TGCCTACAAT TGGACCCAGA AGAGCATCAA GCAGCGGCTT CGCAGCGGTT
CAGCCAGCCC CATGGACCTC CTGTCCTACT TCAAACAACC GGTAGCAGCC ACCAGGACAG TTGTTCGGGC CGCAGATTAT
ATGCATGTGG CTTTGGGGCT GCTTGAAGAG AAGTTACAAC CCCAGCGGTC CGGACCCTTC ATTGTCACTG ATGTGCTAAC
AGAACCACAG CTGCGGCTGC TGTCCCAGGC CAGTGGCTGT GCTCTCCGGG ACCAGGCCGA GCGCTGCAGC GACAAGTACC
GCACCATCAC TGGACGGTGC AACAACAAGA GGAGACCCTT GCTAGGGGCC TCCAACCAGG CTCTGGCTCG CTGGCTGCCC
GCCGAGTATG AGGATGGGCT GTCGCTCCCC TTCGGCTGGA CCCCCAGCAG GAGGCGCAAT GGCTTCCTTC TCCCTCTTGT
CCGGGCTGTC TCCAACCAGA TTGTGCGCTT CCCCAATGAG AGACTGACCT CCGACCGTGG CCGAGCCCTC ATGTTCATGC
AGTGGGGCCA GTTCATTGAC CATGACCTGG ACTTCTCCCC GGAGTCCCCG GCCAGAGTGG CCTTCACTGC AGGCGTTGAC
TGTGAGAGGA CCTGCGCCCA GCTGCCCCCC TGCTTTCCCA TCAAGATCCC ACCCAATGAC CCCCGCATCA AGAACCAGCG
TGACTGCATC CCTTTCTTCC GCTCGGCACC CTCATGCCCC CAAAACAAGA ACAGAGTCCG CAACCAGATC AACGCGCTCA
CCTCCTTTGT GGACGCCAGC ATGGTGTATG GCAGTGAGGT CTCCCTCTCG CTGCGGCTCC GCAACCGGAC CAACTACCTG
GGGCTGCTGG CCATCAACCA GCGCTTTCAA GACAACGGCC GGGCCCTGCT GCCCTTCGAC AACCTGCACG ATGACCCCTG
TCTCCTCACC AACCGCTCGG CGCGCATCCC CTGCTTCCTG GCAGGTGACA CCCGATCAAC GGAAACCCCC AAACTGGCAG
CCATGCACAC CCTCTTTATG CGAGAGCACA ACCGGCTGGC CACCGAGCTG AGACGCCTGA ATCCCCGGTG GAATGGAGAC
AAACTGTACA ATGAGGCTCG GAAGATCATG GGGGCCATGG TCCAGATCAT CACCTACCGA GACTTTCTGC CCCTGGTTCT

GGGCAAGGCC CGGGCCAGGA GAACCCTGGG GCACTACAGG GGGTACTGCT CCAATGTGGA CCCACGGGTG GCCAATGTCT TCACCCTGGC CTTCCGCTTT GGCCACACAA TGCTCCAGCC CTTCATGTTC CGCTTGGACA GTCAGTACCG GGCCTCCGCA CCCAACTCGC ATGTCCCACT TAGCTCTGCC TTCTTTGCCA GCTGGCGGAT CGTGTATGAA GGGGGCATCG ACCCCATCCT CCGGGGCCTC ATGGCCACCC CTGCCAAGCT GAACCGTCAG GATGCCATGT TAGTGGATGA GCTCCGGGAC CGGCTGTTTC GGCAAGTGAG GAGGATTGGG CTGGACCTGG CAGCTCTCAA CATGCAACGA AGCCGGGACC ACGGCCTTCC AGGGTACAAT GCTTGGAGGC GCTTCTGTGG GCTCTCCCAG CCCCGGAATT TGGCACAGCT TAGCCGGGTG CTGAAAAACC AGGACTTGGC AAGGAAGTTC CTGAATTTGT ATGGAACACC TGACAACATT GACATCTGGA TTGGGGCCAT CGCTGAGCCT CTTTTGCCGG GGGCTCGAGT GGGGCCTCTT CTGGCTTGTC TGTTCGAGAA CCAGTTCAGA AGAGCCGAGA CGGAGACAGG TTCTGGTGGC AGAACGAGGT GTTTTCACCA AAGACAGCGC AAGGCCCTGA GCAGAATTTC CTTGTCTCGA ATTATATGTG ACAATACCGG TATCACCACG GTTTCAAGGG ACATCTTCAG AGCCAACATC TACCCTCGGG GCTTTGTGAA CTGCAGCCGT ATCCCCAGGT TGAACCTATC AGCCTGGCGA GGGACATGAG GCTTCTGCAG GAGTCTATCC CAAGTCTCCA ACTTTTGGAG ACAAGGGGAA GGGGAGGACC ATGAGGCTGC CTTGTCTCCC TGGAGCAAGT GCAGGCTCGT GACGCTTCTG CTGGCTACAG CTCAGAGCTG GGTTCCCCAG CCAGGAGTGA AGGCTGGGGG CTCCTATCAG CAATGGACCT TCCGCCTTGG GAGCCTCTTA GGTATTAGGC TATGAATCAG CGCCACGTGC AAAGGCTTGG GAGCCAAGCC ATGTGGTCTT GCACCCCAGG CAAGAAAAGT CAGCTGGAGG GTTTACAGCA CTTTCTACTG TTTCCCAGCC CTCCCTCCCC TCCCTCACCA TGACTAAGAG ACCACTCGGT CCTAGCCTCC AGACACCCCA CAATACTCCT CTGAGCCTGA GGCCAGGCAG CATGCTCTGC TTCTACCAAT AAAGCACTGC CGGAATTC-3' (FRAG.NO:_)(SEQ ID NO:11859)

5'-TC GGC CTG GTC CCG G-3' (FRAG. NO: 1727) (SEQ ID NO:11109)

5'-TGG GGG TTT CCG TTG-3' (FRAG. NO: 1728) (SEQ ID NO:11110)

5'-TG GTC CCG GBG BGC -3' (FRAG. NO: 1729) (SEQ ID NO:11111)

5'-GCG CTC GGC CTG GTC CCG G-3' (FRAG. NO:1053) (SEQ ID NO:10430)

5'-GGG TCT CCT CTT GTT GTT GC-3' (FRAG. NO:1054) (SEQ ID NO:10431)

5'- TTG CGC CTC CTG CTG GGG GT CC-3' (FRAG. NO:1055) (SEQ ID NO:10432)

5'-CTC TGT TCT TGT TTT GGG GGC-3' (FRAG. NO:1056) (SEQ ID NO:10433)

5'-GGG CCC GGC CGT TGT CTT G-3' (FRAG. NO:1057) (SEQ ID NO:10434)

5'-GTT TGG GGG TTT CCG TTG-3' (FRAG. NO:1058) (SEQ ID NO:10435)

5'-GGG TTC TCC TGG CCC GGG CCT TGC CC-3' (FRAG. NO:1059)(SEQ ID NO:10436)

5'-GGC CGT GGT CCC GGC TTC GTT GC-3' (FRAG. NO:1060) (SEQ ID NO:10437)

5'-CCT GTC TCC GTC TCG GCT CTT CTG-3' (FRAG. NO:1061) (SEQ ID NO:10438)

5'-GGG CCT TGC GCT GTC TTT GGT G-3' (FRAG. NO:1062) (SEQ ID NO:10439)

5'-GCB CCG TCC BGT GBT GGT GCG GTB CTT GTC GCT GCB GCG CTC GGC CTG GTC CCG GBG BGC -3' (FRAG. NO:1063) (SEQ ID NO:10440)

Human Intercellular Adhesion Molecule-1 (ICAM-1)

Nucleic Acid and Antisense Oligonucleotide Fragments

5'-GCG CGG GCC GGG GGC TGC TGG G GGT TGG CCC GGG GTG CCC C GCC GCT GGG TGC CCT CGT CCT CTG CGG TC GTG TCT CCT GGC TCT GGT TCC CC GCT GCG CCC GTT GTC CTC TGG GGT GGC CTT C GCT CCC GGG TCT GGT TCT TGT GT TGG GGG TCC CTT TTT GGG CCT GTT GT GGC GTG GCT TGT GTG TTC GGT TTC TGC CCT GTC CTC CGG CGT CCC CGG BGC CTC CCC GGG GCB GGB TGB CTT TTG BGG GGG BCB CBG BTG TCT GGG CBT TGC CBG GTC CTG GGB BCB GBG CCC CGB GCB GGB CCB GGB GTG CGG GCB GCG CGG GCC GGG GGC TGC TGG GBG CCB TBG CGB GGC TGB G-3' (FRAG. NO: 1730) (SEQ ID NO:11112)

5'-GGG GGC TGC TGG G-3' (FRAG. NO: 1731) (SEQ ID NO:11113)

5'-T GTC CTC CGG CGT CCC-3' (FRAG. NO:1732) (SEQ ID NO:11114)

5'-G CCB TBG CGB GGC TGB G-3' (FRAG. NO: 1733) (SEQ ID NO:11115)

5'-CTC TGG GGT GGC CTT C-3' (FRAG. NO:1734) (SEQ ID NO:11116)

5'-GCG CGG GCC GGG GGC TGC TGG G-3' (FRAG. NO:1064) (SEQ ID NO:10441)

5'-GGT TGG CCC GGG GTG CCC C-3' (FRAG. NO:1065) (SEQ ID NO:10442)

5'-GCC GCT GGG TGC CCT CGT CCT CTG CGG TC-3' (FRAG. NO:1066) (SEQ ID NO:10443)

5'-GTG TCT CCT GGC TCT GGT TCC CC-3' (FRAG. NO:1067) (SEQ ID NO:10444)

5'-GCT GCG CCC GTT GTC CTC TGG GGT GGC CTT C-3' (FRAG. NO:1068) (SEQ ID NO:10445)

5'-GCT CCC GGG TCT GGT TCT TGT GT-3' (FRAG. NO:1069) (SEQ ID NO:10446)

5'-TGG GGG TCC CTT TTT GGG CCT GTT GT-3' (FRAG. NO:1070) (SEQ ID NO:10447)

5'-GGC GTG GCT TGT GTG TTC GGT TTC-3' (FRAG. NO:1071) (SEQ ID NO:10448)

5'-TGC CCT GTC CTC CGG CGT CCC-3' (FRAG. NO:1072) (SEQ ID NO:10449)

5'- CGG BGC CTC CCC GGG GCB GGB TGB CTT TTG BGG GGG BCB CBG BTG TCT GGG CBT TGC CBG GTC CTG GGB BCB GBG CCC CGB GCB GGB CCB GGB GTG CGG GCB GCG CGG GCC GGG GGC TGC TGG GBG CCB TBG CGB GGC TGB G-3'?? (FRAG. NO:1073) (SEQ ID NO:10450)

Human Vascular Cell Adhesion Molecule 1 (VCAM-1)

Nucleic Acid and Oligonucleotide Fragments

5'-CCT CTT TTC TGT TTT TCC C CTC TGC CTT TGT TTG GGT TCG CTT CCT TTC TGC TTC TTC C CTG TGT CTC CTG TCT CCG CTT TTT TCT TC GTC TTT GTT GTT TTC TCT TCC TTG CTG BGC BBG BTB TCT BGB TTC TGG GGT GGT CTC GBT TTT BBBB GCT TGB GBB GCT GCB BBC BTT BTC CBB BGT BTB TTT GBG GCT CCB BGG BTC BCG BCC BTC TTC CCB GGC BTT TTB BGT TGC TGT CGT-3'(FRAG.NO:1735)(SEQ ID NO:11117)

5'-C TGT CGT-3' (FRAG. NO:1736) (SEQ ID NO:11118)

5'-TGC TTC TTC C-3' (FRAG. NO:1737) (SEQ ID NO:11119)

HSVCAM1AS1: 5'-CCT CTT TTC TGT TTT TCC C-3' (FRAG. NO:1074) (SEQ ID NO:10451)

HSVCAM1AS2: 5'-CTC TGC CTT TGT TTG GGT TCG-3' (FRAG. NO:1075) (SEQ ID NO:10452)

HSVCAM1AS3: 5'-CTT CCT TTC TGC TTC TTC C-3' (FRAG. NO:1076) (SEQ ID NO:10453)

HSVCAM1AS4: 5'-CTG TGT CTC CTG TCT CCG CTT TTT TCT TC-3' (FRAG. NO:1077) (SEQ ID NO:10454)

HSVCAM1AS5: 5'-GTC TTT GTT GTT TTC TCT TCC TTG-3' (FRAG. NO:1078) (SEQ ID NO:10455)

CTG BGC BBG BTB TCT BGB TTC TGG GGT GGT CTC GBT TTT BBBB GCT TGB GBB GCT GCB BBC BTT BTC CBB BGT BTB TTT GBG GCT CCB BGG BTC BCG BCC BTC TTC CCB GGC BTT TTB BGT TGC TGT CGT(FRAG. NO:1079)(SEQ ID NO:10456)

Human Endothelial Leukocyte Adhesion Molecule(ELAM-1)

Nucleic Acid and Antisense Oligonucleotide Fragments

5'-BBG TGB GBG CTG BGB GBB BCT GTG BBG CBB TCB TGB CTT CBB GBG TTC TTT TCB CCC GTT CTT GGC TTC TTC TGT C
CGT TGG CTT CTC GTT GTC CC TGT GGG CTT CTC GTT GTC CC CCC TTC GGG GGC TGG TGG GGC CGT CCT TGC CTG CTG G
GTT CTT GGC TTC TTC TGT CCG T TGG CTT CTC GTT GTC CC TGT GGG CTT CTC GTT GTC CC CCC TTC GGG GGC TGG TGG
GGC CGT CCT TGC CTG CTG G CCTGAGACAG AGGCAGCAGT GATACCCACC TGAGAGATCC TGTGTTTGAA CAACTGCTTC
CCAAAACGGA AAGTATTTCA AGCCTAAACC TTTGGGTGAA AAGAACTCTT GAAGTCATGA TTGCTTCACA GTTTCTCTCA
GCTCTCACTT TGGTGCTTCT CATTAAAGAG AGTGGAGCCT GGTCTTACAA CACCTCCACG GAAGCTATGA CTTATGATGA
GGCCAGTGCT TATTGTCAGC AAAGGTACAC ACACCTGGTT GCAATTCAAA ACAAAGAAGA GATTGAGTAC CTAAACTCCA
TATTGAGCTA TTCACCAAGT TATTACTGGA TTGGAATCAG AAAAGTCAAC AATGTGTGGG TCTGGGTAGG AACCCAGAAA
CCTCTGACAG AAGAAGCCAA GAACTGGGCT CCAGGTGAAC CCAACAATAG GCAAAAAGAT GAGGACTGCG TGGAGATCTA
CATCAAGAGA GAAAAAGATG TGGGCATGTG GAATGATGAG AGGTGCAGCA AGAAGAAGCT TGCCCTATGC TACACAGCTG
CCTGTACCAA TACATCCTGC AGTGGCCACG GTGAATGTGT AGAGACCATC AATAATTACA CTTGCAAGTG TGACCCTGGC
TTCAGTGGAC TCAAGTGTGA GCAAATTGTG AACTGTACAG CCCTGGAATC CCCTGAGCAT GGAAGCCTGG TTTGCAGTCA
CCCACTGGGA AACTTCAGCT ACAATTCTTC CTGCTCTATC AGCTGTGATA GGGGTTACCT GCCAAGCAGC ATGGAGACCA
TGCAGTGTAT GTCCTCTGGA GAATGGAGTG CTCCTATTCC AGCCTGCAAT GTGGTTGAGT GTGATGCTGT GACAAATCCA
GCCAATGGGT TCGTGGAATG TTTCCAAAAC CCTGGAAGCT TCCCATGGAA CACAACCTGT ACATTTGACT GTGAAGAAGG
ATTTGAACTA ATGGGAGCCC AGAGCCTTCA GTGTACCTCA TCTGGGAATT GGGACAACGA GAAGCCAACG TGTAAAGCTG
TGACATGCAG GGCCGTCCGC CAGCCTCAGA ATGGCTCTGT GAGGTGCAGC CATTCCCCTG CTGGAGAGTT CACCTTCAAA
TCATCCTGCA ACTTCACCTG TGAGGAAGGC TTCATGTTGC AGGGACCAGC CCAGGTTGAA TGCACCACTC AAGGGCAGTG
GACACAGCAA ATCCCAGTTT GTGAAGCTTT CCAGTGCACA GCCTTGTCCA ACCCCGAGCG AGGCTACATG AATTGTCTTC
CTAGTGCTTC TGGCAGTTTC CGTTATGGGT CCAGCTGTGA GTTCTCCTGT GAGCAGGGTT TTGTGTTGAA GGGATCCAAA
AGGCTCCAAT GTGGCCCCAC AGGGGAGTGG GACAACGAGA AGCCCACATG TGAAGCTGTG AGATGCGATG CTGTCCACCA
GCCCCCGAAG GGTTTGGTGA GGTGTGCTCA TTCCCCTATT GGAGAATTCA CCTACAAGTC CTCTTGTGCC TTCAGCTGTG
AGGAGGGATT TGAATTATAT GGATCAACTC AACTTGAGTG CACATCTCAG GGACAATGGA CAGAAGAGGT TCCTTCCTGC
CAAGTGGTAA AATGTTCAAG CCTGGCAGTT CCGGGAAAGA TCAACATGAG CTGCAGTGGG GAGCCCGTGT TTGGCACTGT
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AAGCCTTGAA TCAGACGGAA GCTACCAAAA GCCTTCTTAC ATCCTTTAAG TTCAAAAGAA TCAGAAACAG GTGCATCTGG
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CAAAGGTGAA GAGACCAAGA CTCTGAAATC TCAGAATTCC TTTTCTAACT CTCCCTTGCT CGCTGTAAAA TCTTGGCACA
GAAACACAAT ATTTTGTGGC TTTCTTTCTT TTGCCCTTCA CAGTGTTTCG ACAGCTGATT ACACAGTTGC TGTCATAAGA
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CCCACAGGCA AATGCATGGA GGGTTGTTAA TGGTGCAAAT CCTACTGAAT GCTCTGTGCG AGGGTTACTA TGCACAATTT
AATCACTTTC ATCCCTATGG GATTCAGTGC TTCTTAAAGA GTTCTTAAGG ATTGTGATAT TTTTACTTGC ATTGAATATA
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GCAATGAAAA ATTCTCAGTC AGTAATTGCC AAAGCTGCTC TAGCCTTGAG GAGTGTGAGA ATCAAAACTC TCCTACACTT
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5'-GCCACCATGG AAACCCTTTG CCTCAGGGCA TCCTTTTGGC TGGCACTGGT TGGATGTGTA ATCAGTGATA ATCCTGAGAG ATACAGCACA AATCTAAGCA ATCATGTGGA TGATTTCACC ACTTTTCGTG GCACAGAGCT CAGCTTCCTG GTTACCACTC ATCAACCCAC TAATTTGGTC CTACCCAGCA ATGGCTCAAT GCACAACTAT TGCCCACAGC AGACTAAAAT TACTTCAGCT TTCAAATACA TTAACACTGT GATATCTTGT ACTATTTTCA TCGTGGGAAT GGTGGGGAAT GCAACTCTGC TCAGGATCAT TTACCAGAAC AAATGTATGA GGAATGGCCC CAACGCGCTG ATAGCCAGTC TTGCCCTTGG AGACCTTATC TATGTGGTCA TTGATCTCCC TATCAATGTA TTTAAGCTGC TGGCTGGGCG CTGGCCTTTT GATCACAATG ACTTTGGCGT ATTTCTTTGC AAGCTGTTCC CCTTTTTGCA GAAGTCCTCG GTGGGGATCA CCGTCCTCAA CCTCTGCGCT CTTAGTGTTG ACAGGTACAG AGCAGTTGCC TCCTGGAGTC GTGTTCAGGG AATTGGGATT CCTTTGGTAA CTGCCATTGA AATTGCCTCC ATCTGGATCC TGTCCTTTAT CCTGGCCATT CCTGAAGCGA TTGGCTTCGT CATGGTACCC TTTGAATATA GGGGTGGACA GCATAAAACC TGTATGCTCA ATGCCACATC AAAATTCATG GAGTTCTACC AAGATGTAAA GGACTGGTGG CTCTTCGGGT TCTATTTCTG TATGCCCTTG GTGTGCACTG CGATCTTCTA CACCCTCATG ACTGGTGAGA TGTTGAACAG AAGGAATGGC AGCTTGAGAA TTGCCCTCAG TGAACATCTT AAGCAGCGTC GAGAAGTGGC AAAAACAGTT TTCTGCTTGG TTGTAATTTT TGCTCTTTGC TGGTTCCCTC TTCATTTAAG CCGTATATTG AAGAAAACTG TGTATAACGA GATGGACAAG AACCGATGTG AATTACTTAG TTTCTTACTG CTCATGGATT ACATCGGTAT TAACTTGGCA ACCATGAATT CATGTATAAA CCCCATAGCT CTGTATTTTG TGAGCAAGAA ATTTAAAAAT TGTTTCCAGT CATGCCTCTG CTGCTGCTGT TACCAGTCCA AAAGTCTGAT GACCTCGGTC CCCATGAACG GAACAAGCAT CCAGTGGAAG AACCACGATC AAAACAACCA CAACACAGAC CGGAGCAGCC ATAAGGACAG CATGAACTGA CCACCCTTAG AAGCACTCCT-3'(FRAG.NO:_)(SEQ ID NO:11850)

5'-GATCAAAATT TTTACCTATT ATGCATTTGA TATATAAATA AGTATATAAA TGCACACACA GACACAGCAA TGATGGTGAA CAGTCTTCAT ACAATTATAT GGATGAATCT CATAAAATGC TGAGTTAAAG AAATCAGACC AAAGAACATA TACTGAAAGA TTCTCTCTAT ATACAAAGTT CAAAAATAGG TGGACCAATT CATGGTGGTG TTAGAAATCA GAAGAGAGGC TACCTTTGTG GGGAGGGGAC AGTTTAATGC CCAGAAGCGG TAAATAAGGA ATCCTCTGGG GAGTGGTAAT GATCTGGATG CTGGCTACAG GATGTGTTGG TTGTAAAAAT GCATTTTTTT ATATCTAGCT TTTTCCATGT GTATATTATA CTTCAAAGAA GTTCAGTTAA TAATTTCTCA TGTCACTGTA GAGTAGCTCA GTTAGCCCCA GCAAGCCTCT GGCTTAATCT TGTTTTACCT TAAGCCATCA GTCATTTACA AGTAGGAAAA TTCACAGGGA AAGTTAGAGT ATAAAATCCA GAATGAAGGT TTACTGGGTA AGAGTCTCTC CATTTTCCAA AGCCCGTTTA TTTCTTGATT CCAGTTCTTA AGAAGTCTCA GCATTGTGTC TTTTTCATGT ATCTTACAAG AAGACAGCAT GTGCTTCTAA CACCTGATAC ATTGTATCTA CCAGCACTTG GTAAACAGAA AAGAACCACA TTTTTCTTGT AGGAGAAATT TGGTGCCTAT TTCCTACCAG GCACCAATAA GTGGGACCAA TAGGTGGGAT TAAAGATACA GTAGAAAGTA TTTAAAACTT GCCAGGGGGC AATAGTCTGA AAATAAGTAA ATTGGTGCTA TAGAATGGAA GTTACAGGCT TCTTTCTTTT TTCCCACAAG ATCTGCTCCT TGAGCCCCTA GAGACTTTTC TGTCTGTTAC TGTTTCTTCA TTCCTCATCT GCAGAGCCAG CCCTGAGAAG TGCAGACCAA AGCCAGGGAA GGCTCTGCAA AGATGTACAA ATGGAAGTCA CCTTAATAAC CTCTGACTGC TGCGCATAAT ACATTTCACT CAAAAGAGGG GTTAAACAAT GGAACAGAAT ACAGAGGCCA GAAATAATGC TGAACACTGA CAACCATCTG ATCTTTGACA AAATCCACAA AAACAAGCAA TGGAGAAAGG ACTCCCTATT CCATAATGGT GCTGGGATAA CTGTCTAGCT ATATACAGAA GATTGAACCT GGGCCCCTTC CTTACATCAT ATACAAAAAA TAACTCAAGA TGGAGTAAAG ACTTAAATCT AAAACCAAAC ACTATAAAAA CCCTGGAAGA TAGCCTGGGA AATACCATTC TGGACATAGG ACCTGGCAAA GACTTCATGA CAAGACACCA AAAGCAATAG CAACAAAAAC CAAATTGACT AATGAAACTA ATGAAACTCT TTAGTTGTAC AACAGATAGT TTATCTGTAC AACAAAATAA ACTATCAACA GAGTAAACAA CCTACAGAAT GGAAAAATTT TTTGCAAACT ATGCATCTGA CAAAGGTCTA ATATCCAGAA TCTATAAGGA ATTTAAACAA ATTTACAAGC AAAAAAATGA CCTCATTAAA

AAGTGGGCAA AGGACATGAA CAGATGCTTT TCAAAATAAG ACATTCACAC ATCCAACAAC CATATGAAAA GATGTTTAAC ATCACTAATC ATTAGAGGAA TACAAATCAA AAGCATAATA AGATACCATC TAATACCAGT AGGAATGACT ACTATTAAAA AGTCAGACAA TAACAGATGC TGGTGAAGGT TGTGGAGAAA AGGGAATGTT TATGCACTGC TAGTGGGAAT GTAAACTAGT TCAGCCATTG TGGAAGAGAG TGTGGTGATT CCTCAAAGAA TGTAAAACCG AACTGCCTTT CAATCCAGCA ATCCCATTAT TGGATATACA CCAAAAGGAA TAGAAATTGT TTTACCGTAA AGGCGCATGC ATGCATATGT TCATTACAGC ACTATTTACG ATAGCAAAGA CATGGAATCG TCTAAATGCC CATCAGTGGT AGACTAGCTA AAAAAAAAAA AATGTGGTAC ATATACATCA CAGAATAGTA TGCAGCCATA AAAATGAACA AGATCATCAT GTCCTTTGCA GCAACATGGA TGTAGTTGGA GGCCATTATC CTAAGCAAAT TAATGCAGGA ACAGAAAGCC AAATACCACA TGTTCTCATT TATAAGTGAC AGCTAAAATAT TGAGTACACA TGGACACAAA GAAGGGAACA ATAGACATGG GACCTACTTG AGAATAGAGG GTGGGAGGAG GGTGAGGATC AAAAAGTACC CATAGGACAC TGTGCTTATT ACCTGGGTGA TGAAATAATT TGCACACCAA ACCCCTGTGA CACACAATTT ACCTATATAG AAAACCTGTG CATGTACCCC TGAACCTAAA AGTTAATGGT GGGGGGGTGG GGTTAAGCTA CTTTGTGGTA TAAATCTGAG CATTCATATT AAAATAAAAT 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CTGATGTTGC AGCAAGACAA ATTTAAGCTA GATGTAAATA ACTTCCTTTA GCCTGTAATG CTAGGCTAAT TACATATTGG AACTATTTTT TCAGGGAAGA ATTGTGTAGG GTTTCAGGGA AGAATTCTGA AGAAAATATA GAGCTGAAAT GATCTTGCAG CTCACTGAAA CTGCAGGGTT TAGATCCACA CTGATACTCG TTCTATTATC ACTGTAATGA AGGCTGATGG AATAAGTAAA AATGTTTTGT ATTAGTATGT TTTTACACTT ATTTGCAAGG CATAAATAGG TTAGGTTTTG ATCTTAATTT AATTCTAACA TGTATTGTGC ACAAGCTGTG AGCAGTTTTC AGGAGTTAGG TATCTGGCCA TGACTGATTT TTCAGGAGTT AATCATCTGG TAGAAGGGTC ATACACAATA GGAAGATGTG TGTGACAGGT TGTGATCATT ACTATAATCA CACAGAGAGC TGTAGAATTT TAGGCTGGCA GGGTGGCTCA CGCCTGTAAT CCCAGCACTT TGGGAGGCCA AGGCAGGCGG ATCAAGAGGT CAGGAGATGG AGACCATCCT GGCTAACACG GTGAAACCCC GTCTGTACTA AAAATACAAA AAAAAAAAAA AGCCAGGCGT GGTGGTGGGC GCCTGTAGTC CCAGCTACTT GGGAGGCTGA GGCAGGAGAA TGGCGTGAAC CCGGGAGGTG GAGCTTGCAG TGAGCCGAGA TCGCATCACT GCAATCCAAC CTGGGCGACA GAGGGAGACT CAGTCTCAAA AAAAAAAAAA AAAAAAAGTC ATGTTAGATC CAGAGGGGTA GCAACTGGGG CTGGGCTGTC AGTCAACTCA GTCAACTCAG TCAACTCTGC TCCCCCACAG GAGATGCCAG TGATGCATTT TCATGGCCAA CATTGTCAGT CAGCATCATT GAATTACTCC TGATTATAGA GACACAGCTG CAAACGATTC CCCATTAAAT ATGATGTTTC TTGCAATGTT TGGAAGGTAC TCCTTTTTAG TAAGGGAAAT CCCCTCTTCT GGCTTGCTGA AAGTTTTTTC TTTCCATTTT AAAAATCGTG AATTCCTTTT TGCAATATTG AGGTGGTTAT ATGGTTTCTC TTCTCTAATC TGTTAATATG GTGATTTAAT GGTTAGAAAT TTTCTAATGT AAATTCCACT CATATTGCAG AAATAAACCT AAACTGAGCA TGAGGCTATA TTTTTTATTT GCTTCTATAT TTGGTTGCTA TACAGTATTA TGTTTAAGAT TTGTTCACAT ATATTTGTGA ATGGGATTGG ACTATTTTTC CTTCTTGCCG ATTTTTATCT GGTTTTTAAA TTAAGGATAT TTTAGACTTA TGAAATATTT GGCAAACAAT CCTTGGCAAG TAATTTTTTG GGGAATTTGT TTTGGCTATT TTGAGTATTA CCCAATATAT TTTAATTAAG TTATTCTTAA TGTTTTCTTA ATTAAAAAAA TTACCTACTC TAGAGATATT CTTTATGTAC TCCAGATTTT GTCTATTTAT ACCACTTTTC TTTTTCCTC GATGAGTGTC ATAGATGTTC ATCTATTTTT TTATCTTCTT TGATCTTCTC TTATTCCTTG TTTCTATTAA CTTCTGAAGT TTATTATTTT CTTTTTTCCA CTTCCTTATG GTTTATTCTT TCAATTTTTC TCTAACTTCT TAAGTTGGGT GTTTAATTTT TAGCTTGCTT TGCTTTTTTA GGATAAGCAT TAAAACTACA AATTTTCCTT GTTATTCTTT TGCTGCACCC CAAATTGTTG ATATTTCTAT TGTCTAATTT CTATTCAATT AGAATACTTT AAAGTTTCTT TTTGGTTTTT AAAAACTAAC TTTTTAAATT GACAAATAAA AATTGTGTAT ATTTATTGTG CACAGCATAT GGCTTTGAAA TATATGTACA TTGTGGAATG GCTAAATTTA GCTTATTAAT GTATGCATTA TCTCACATAC TTATCATTTT TTGTGGTGAG AGCTATGTGA CTTTTGAACT TATGAGTTAT TTAAATATTT TTAAATTATT AAGCATATTG GGATTTTAAG TAATTTACCT TTTTATTATT AACTTATAAC AAGTAGAACA GTTAACCTGT ATGATTCTAC ATCATTGAAA TTTATTGACA TTTGCTTCAT AGTCTATTAT ATGGTCTACT TTTGTTCATG TTACATCTGT AGTAGAATTG GCTAATAGTT GAGTAAAGTA CACATATGTC TATGAAATCA AGTGTAATCC AGAGAAAAAG AGAAATTTAC TGAATATATT GTTCTAGGTG CTATTATATG TTGTCATGTT TAATCCTCAC CACAATTGTA TGAGGCAGCC ATAATTAATT CCACTTTACA CATGAGGAGC CTGAGGGTTA

AAAAAAAAGC TAGCTCTACT ATTTGTAAAG AATGAAGCAA AGATACAAAT GAAGGCCCAC ATATCCTATA ACTAGATATT
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TATTGGATAT CTGCTCTGTT ATTTCCAGTA TGGACCATGC ATTTCATGCC AATACTTGGA AGTTTATAAT TAAGTAAGTT
TGTTTGTTAT TTTTTACTTT TTAGAAAATG TTTTCCATAT TCCCCAATCT TAATTATTCA TGATTCTTTA GATTGCATTT
AAAACATTTT GTGTGAATTT AATGTTCACT GACACTGCTG TCTGATAATC CAGATATTCT ACATGTAGCT CTCAAGCCAA
ATTGGACTTC TTTACCCTGT GGCCTCTAAA ATTAAAAAAA ATGTTCTTCC TAGTTAGCTA GTACTTCAGA AATAATGGGC
CATGGGCCAG ACTAGAACTT AACCACTTTT CTTCTGCTAC TGTTGTTTAA CCAGCTATCA AGTATCCTAT TTCTAGGATT
AGATAAATTG ATAACTATAA TTAAAACTGA ATATAATCTT TTCATTAGGT ACTTTTAAGT TGTTCACACT TAATTCCATT
TGTACAGTAA TTTTAACTTT CTGAAACTGA AGCATTTTAA AGGGTCACCA GGGATAGTGC CTGTAGCATT CATCAGATTC
TTAGGGGTGA GAGGAGATGT GGTTGAGATG TAAAAATGGT TAAGAATATC TACTTTATAC ACATACATAA AACATTAAAG
GTCAGTGTAT TTTCAGGTCT TAGGTACTTT TCTTGTACTA CCAGGACATT AAGTTGCCAT TCAGTGGTTA AGAGTGTTGC
CTGGGAGCTG TATCACATGT GCTTAAATCC ATTCTTGAAA TCATTTACTC CTTCTGAGCC CTTGGGCTAT TTGGTTAATT
TCTCTGAACG TTAGTTTGCT CATCTGAAAA TGGAAATAAT AATAGCAACT TCTTGACAGG GTTATAGTGA GAATTGAGTT
CATCACTGTG AAATGCTTAG AAATGTGCAT GACACATAGT TAATACTCAA GGAATTAGCC ACATCACTAT CATCATCACT
GATTATCTTC CACTCTTACC CTCTTCCAGT TCATTTTCTG CCCAGCAGAA TGATCTTTTA AAAAGTAAAT CAGATCATGT
TACTCTATTG CTTGAAGTCT ATCCCATTTG ATTAAGAATA ACAACCTAAT CCTCTGTGGA TGCTGCCTCC TTCACCAGCC
TGTCTCATGC TGCTCTCCCT ACTCTTAGTT CCTCAAACAT ACCAAACTCT CCTGTCCCAG AGTCTTTTCG TGGTTTTTCC
ATCTGCCTAG GATGCTTCTC TCTCCTATTT TGTGTACCTT GCTAACTCCT GCTTACTGTC TTTCAGTTCT CAGCTTAAGA
GTTATATCTT CATGATAACA TTCTTTGATA TCCTTACCCT AAGATTAAGT TAGATTGATA TCCTTACCCT AAGAATAAGT
TAGATTAGGT CTCTCTATTG TAGCACCTTA GACTCTGTCA TTTGACAAAT CACAGCCCTA ATTAATTATT CTTAAAATTA
TTTAACATTC TCTCTCATGC TAGACCACAA GTTTCATGCA GGTAAGGCGG AGATTGTGTC CATTTGTTTG ACCCCTTTGT
CTCCAGGGCC TGGTAGAATG CCTCATACAT AGTAAGAATT CAATTAATAT TTTACACAGA GAAAAAATTA GCAACTTATT
TAAACAAATA TAACTGCTTC AGAGGTAAAC TGGGCACATC TTAGTTATAT TATGTGATAT ATGATGCTTT TTGATTGTTT
TTTTAAATGT TCTACAAGGT AGATATTGTT AGAGGTCCTA AGTTACTTGA TGTGTTACTT GTGGTGATTG TATTCTTTTC
TTTTTATTCA TTTAGGCAGA GCCTTAAGCA CCAGTCCATA ATAAAAAGCC AGTTGAAACA CAAAGATATA ATTACTAGCT
TGTGTGAAGA CATTCTTTTC TCCTTCCATT CTTGTTTACA GTTAGCTGAG CAGATGACAC AGTCAGATGC ACAGGTAAAA
TTTGGGCTAA TAGCATTTTA AACAGCAACT CTTATTTTCT TTGGCAGTTA GTAAATCTCA TTTGAATGTC TGGGTCAGTC
TATTTAAGAG GATTTTAATT TATTTCATTT GGGTGTTTTT TTTTGATCTG TGGGATTATT TATATCCCAT AATTACTTTT
CACCCAGAGC ATTGTATTAG ATTCCTAACT GCTGTCATTG CCTCTGGGGT CTGCCTGGCT CCCTCTTTGC TTGGTAACTG
GTTGGTCACA GCATTCTTCT CAGAATCCTT TCATTCTTTT CTGCATGAGA ACAAAAATTC TTTTGTTCAT ATTTGTATAA
GATCTGATAT AGCTGCAATC AATCTTGCAT TTTTTCTTCA CCAACGCATT GCGACCTTTA GGGATACAAG TATGTTTGTG
CATGTATATG TATGTATCAG TCTTTTAAAT TTGATATAGT CATACATTTG TTTTTATTTT GAAAAGTTAG AGTGTTGAAT
TGGTATCCCA TTTATGAAAC ATTATATTCT AAAAATTTGT AGTACGATTA TTGGGAATTA TAACTCATTT TCCTGTAACA
CTGTTATACA TAGTACCTTT TGCTTTCAGA CTAGCCCTCA ATTTTATTTA ACTATAGTAG TCCTAAATTA TAAGATTAAT
AGTACTCAGG ACCTAACAGT TATATGTCAT TTGTTTTTTT TTTTTTTGAG ATGGCGTCTC ACTCTGTCAC CCAAGCTGGA
GTGCAGTGGT ATGACCTTGG CTCACTGCAG CCTCTGCCTC ACGGGTTCAA GGGATCGTTC TGCCTTAGCC TCCTGAGTAG
CTGGGATTAT AGGCGCCTGC CACCACGCCT GGCTAATTTT TTTAGTAGAG ACGGGGTTTC GCCATGTTGG CCAGGCTGGT
CTCGAACTCC TGACCTCAGG TGGTCCACCC GCCTTGGCCT CCCAAAGTGC TGGGATTACA GGTGTGAGCC ACCGCGCCCA
GCCTATATGT AATAATTTTA ATGGGACCAT GAATTGAATA TTTCTTCCTT GAATAGCAAT GACATAGCCC CTTCTATTGT
ACATCTGCAA GCTGATACAG GGAATTCCTT TGTACCTGCG CTCTTCCCTG CCAGTCAGCT ATGGGGGTGA AAGTGTAGGG
GTTCATCCAA GTCCTAAAAC TGGTAGCAAC TCCTAGGGCA GGGCTGATCT GGAAGGACAG ACCCTAGGGG AGGGTGGAAC
TTTAAAAAGA AGTTCTGAAG GTAGTAAGAA GGAAATGAGG AGTAGTGTTA GGAAGGGGCT AACTTTTTTC TTCTTGCTTC
TCTTCTTTAT CTCACCTGCC CCTCCCCTTG TATCCCTTCT TCCTTTTTCC CTTTCCTTTT TTGTCCTCAC TTCATTCGTG
CATCCTTTCT GATTCCTCTT ACCTTGCTAA AAGGAGAAGT TTGTTTGGGT ATCCTATATC AATGGCAGGA AGGTTGTTTT
CTTCTTTACC TTTATCCTAT AGATTCATAT TCTCAACACC AACCTCCTCC TTTTTCAGTT TCCTTCTTGC TTCTCTTGAC
ACCACAGAGT TTGCAGCTAG TACTTGGAGA GGAAAATTAA ACAGAGATAC TTGGACCAAG AGTAAGATGA AGAAAGTCTA
AACAACAGTA TAGTCTATAG TGGCAAGAGA GAGTATGGGG GCTGCTTAGC CAGGGTGGCT GTACATAAAG TATATCTTCA
GTTTATATAA ACTGCTTATA GATGGAAATC AGAAAATTTA AATTCTCTTA ACTGTCCAAG AAAATTCTCA TTTTTTCAAA
TTTGGGACTG ATAAATGTGA CCAGTTCTGC TTACTGTCCA TTGCCTGAAA TGGAGCTTTG AGGTGGACTG TATAATTTCT
TCAATCTTAA CTCCAAATTC TGATCAGCGA CGCCCTCTGC TGTTCACTAT TAATATTTAT TTACCAATCA AAGTAAAGTA
TTGAAGTTTT CCTGGCAGTT TTCACTTTGT GTTTTAGTCC ATTTAGGCTG CTATAACAAA ATCCCTTAAA CTGGGTAAGG
GATTATAAAT ATTAGAAATT TATCTCTCAC AGTTCTGGAA GCTGGGAAGC CCAATATCAA GGCACCAGTA GATTTGGTGT
CTAACGAGGG TGTGCCGTCT GCTTCAAAAA TGGCCCCTTG TTGCTGCATC CTCACTTAGT GCAAGGGGCA AGACAGCTCC
CTTCAACCTC TTTTATAAGG GCACTTATGT CATTCATGAG GGCAGAGCCC TCATGACTTA ATCACTTCCC CAAAGGCCCC
ACCTCTTAAT AGTATCACAT TGGGTGTTAG GTGTCTGGGA GGACACCAAT CTTCAAGCCA TATCATCTCA CTTGGAAAAA
AGTCAAAATA AAACCAGTAG ATTTAATTAA TATTACACTA TTTATAGAAG CATGTGATGT ATCATTCCTT GTATTAATTT
CCTGGGGTTG CCGTAACAAG TTACCACAAA CTAGGTGGCT TAAAACAATA GAATTTTATT CTCTCACATT TCTAGAGGCA
GAAGTTCACA GTGTGTCAAT AGGGCCATGT TCTCTGGAAG GCTTTAGGGG AGAATATATT TCATATCTTT CTCTTAGCTT
CTCGGTGTCA CTGGCAATCC TTAGCTTACT TTGGCTTTCT GTGTCTTCAC ATCATCTTTT TATAAGAACA CCAGTGATAG
TGATTAAGGG CATACCTTAC TTTAATATGA CCTCATCTTA ACTAATTATG TCTTCAATAA CCCTATTTCC AAATAAGGCC
ACATTCTGAA GTATTGGGAG TTAGAACTTA AAGCTTTTTG GGAGGGACAC AGTTCAACCC ATAACAACCC CTAAAATCGA
TATTTATTCT CAATTAAGTC TTGAAATTGG TTTCAAAAAG AGAATATTCT ATTAGAGTTT TTAATGTATA GTTTTAACAT
ATAGTTCTTT AGCCCCCAAT TTTTTTTTTT TTTTTTTTTT TTTTTTTTTT TTTTTGAGAC GGAGTCTCGC TCTGTCGCCC
AGGCCGGACT GCGGACTGCA GTGGCGCAAT CTCGGCTCAC TGCAAGCTCC GCTTCCCGGG TTCACGCCAT TCCCCTGCCT

CAGCCTCCCG AGTAGCTGGG ACTACAGGCG CCTGCCACCG CGCCCGGCTA ATTTTTTTGT ATTTTTAGTA GAGACGGGGT TTCACCTTGT TAGCCAGGAT GGTCTCGATC TCCTGACCTC ATGATCCACC CGCCTCGGCC TCCCAAAGTG CTGGGATTAC AGGCGTGAGC CACCGCGCCC GGCCTGCCCC CAATTATTTA GTTTTTCTAT AAACAGGGAA ATTTATTTGT GTGGCCCTTA GAACTAATTT AATTTCCACT CTAATTCCTA CTTATGTTTA TATAATGCTT TTAGAAATTT GTATTATTCA GAAAATAAAC ATATACTATT GTATCTGTTG CCTACACTTA GATTTTATTG CCTGCTATAT TTAAATTTTA TTAGTATTTT AATTGTTTTA TTAAAGAAAG AATGTGCCTG TAATCTCAGC ACTTTTGAGA GGCCAAGGCA GAAGGATTGC TTGAGCCCAG GAGTTTGAGA CCAGACTGAG CAACACAGGG AGACCCCCAT CTCTACAAAA AATAAAAAAA TTCTCCAGGC CTCATGGCAC ATACCTGTAG TTCTAGTTAC TTGGGAGACT GGGGTGGGAG GATGCATTGA GCCCAGGAGA TTGAGGCTGC AGTGAGCCAT GATCAGGCCA CTGTACTCCA GCTTGGACAA CAGAGTGAGA GCTTGTCTAG ATAGATAGAT AGATAGATAA TCTAAATAGA TAATAGACAG ATTATCTAAA TAGATAATAG ACAGATTATC TAAATAGATA ATAGACAGAT TATCTAAATA GATAATAGAC AGATTATCTA AATAGATAAT AGACAGATTA TCTAAATAGA TAATAGACAG ATTATCTATC TAAATAGATA ATAGATTATC TAAATAGATA ATAGATAGAT AGATTAGATA GATAGATAGA TAGATAGAGC TTGGACAACA GAGTGAGAGC CTGTCTAGAT AGATAGAAAC AAAGAAAGAA AGAAAGAATG GTGCTCATAT TTTAAAGCAT TGAAAAATGG TCTTCCTTGC TTATATTACC CACACCTTCT TTGTTGGCAT TAAGATGCAA ACTTTGTTTT AAACAGTTGA GTAAATCAAA GATGGGACTG TTAAGTTATT TGTGTTATTT ACCTGCTTTT TGAAAATGTA AAAATAAAAC TCTAGGTTTA ATTAGTAGTA TGCTATTTAG TAATGAAGTA AAGCTAGAGG CTTCGAACAA ATCTTGTGTA ATTTCCTCTT GAATGAGAGA GAAAATTTAA AGTAAGCAAA CAAATAAGTT GTGTGTCACC ACTCATTCAG TCATTTAACA AGTATTTCCA GAGTACTTAT TCTGTGCCAG GAAATGTTGT AGGTGCCCTC AACAACTTAG AGTCTAGCCT GAGACACAAG TAAGTAGGTA ATTATTATAG AATGGTATGA TCTTTGGAGG ACTGGGTATT GGCTGGCTCA TGGGAGTACA AGATAGGTAC CCAGTGATGA AGTCAGGAAA GGTTTCTTAT GGTGATATGA TGACGTCTAT GCTGATTATA AGGTCAGTGT AGAATAAACT TTGTGCTTTT AAATTTGCAT AGCACTGTAT TAGAGAGTTC ATCTTCAAAA TAATCGAAAA GGCTGAGTGT GGTGACCCAT GGCTGTAATC CCAGCACTTT GGGAGGCCGA GGTGGGCAGA TTGCTTGAGC TAGGAGTTCG AGACCAGGCT GGCCAACATG GTGAAACCCC GTCTCTACTA AAAATACAAA AATTAGCCAG GAGTGATGGT GCGCACCTGT AATGCCAGCT ACTTGGGAGG CTGAGGCAGG AGGATCACTT GAACCCAGGA GGTGGAGGTT GAAGTAAGCC GAGGTCATGC CACTGCACTC CAGCCTGGGC AACAGAGTGA GACTCCATCT CAAAAAAAAA AAAAATGATC AAAGAAAGGT GAATTTTCAT CTACCCTATT TCTGCTGAGG AAAATGGACT ATTTTCAAAT ATTTTTAATA AGGGTCAAAA TGAGGGATC-3' (FRAG.NO:_)(SEQ ID NO:11849)

5'-CCTGAGACAG AGGCAGCAGT GATACCCACC TGAGAGATCC TGTGTTTGAA CAACTGCTTC CCAAAACGGA AAGTATTTCA AGCCTAAACC TTTGGGTGAA AAGAACTCTT GAAGTCATGA TTGCTTCACA GTTTCTCTCA GCTCTCACTT TGGTGCTTCT CATTAAAGAG AGTGGAGCCT GGTCTTACAA CACCTCCACG GAAGCTATGA CTTATGATGA GGCCAGTGCT TATTGTCAGC AAAGGTACAC ACACCTGGTT GCAATTCAAA ACAAAGAAGA GATTGAGTAC CTAAACTCCA TATTGAGCTA TTCACCAAGT TATTACTGGA TTGGAATCAG AAAAGTCAAC AATGTGTGGG TCTGGGTAGG AACCCAGAAA CCTCTGACAG AAGAAGCCAA GAACTGGGCT CCAGGTGAAC CCAACAATAG GCAAAAAGAT GAGGACTGCG TGGAGATCTA CATCAAGAGA GAAAAAGATG TGGGCATGTG GAATGATGAG AGGTGCAGCA AGAAGAAGCT TGCCCTATGC TACACAGCTG CCTGTACCAA TACATCCTGC AGTGGCCACG GTGAATGTGT AGAGACCATC AATAATTACA CTTGCAAGTG TGACCCTGGC TTCAGTGGAC TCAAGTGTGA GCAAATTGTG AACTGTACAG CCCTGGAATC CCCTGAGCAT GGAAGCCTGG TTTGCAGTCA CCCACTGGGA AACTTCAGCT ACAATTCTTC CTGCTCTATC AGCTGTGATA GGGGTTACCT GCCAAGCAGC ATGGAGACCA TGCAGTGTAT GTCCTCTGGA GAATGGAGTG CTCCTATTCC AGCCTGCAAT GTGGTTGAGT GTGATGCTGT GACAAATCCA GCCAATGGGT TCGTGGAATG TTTCCAAAAC CCTGGAAGCT TCCCATGGAA CACAACCTGT ACATTTGACT GTGAAGAAGG ATTTGAACTA ATGGGAGCCC AGAGCCTTCA GTGTACCTCA TCTGGGAATT GGGACAACGA GAAGCCAACG TGTAAAGCTG TGACATGCAG GGCCGTCCGC CAGCCTCAGA ATGGCTCTGT GAGGTGCAGC CATTCCCCTG CTGGAGAGTT CACCTTCAAA TCATCCTGCA ACTTCACCTG TGAGGAAGGC TTCATGTTGC AGGGACCAGC CCAGGTTGAA TGCACCACTC AAGGGCAGTG GACACAGCAA ATCCCAGTTT GTGAAGCTTT CCAGTGCACA GCCTTGTCCA ACCCCGAGCG AGGCTACATG AATTGTCTTC CTAGTGCTTC TGGCAGTTTC CGTTATGGGT CCAGCTGTGA GTTCTCCTGT GAGCAGGGTT TTGTGTTGAA GGGATCCAAA AGGCTCCAAT GTGGCCCCAC AGGGGAGTGG GACAACGAGA AGCCCACATG TGAAGCTGTG AGATGCGATG CTGTCCACCA GCCCCCGAAG GGTTTGGTGA GGTGTGCTCA TTCCCCTATT GGAGAATTCA CCTACAAGTC CTCTTGTGCC TTCAGCTGTG AGGAGGGATT TGAATTATAT GGATCAACTC AACTTGAGTG CACATCTCAG GGACAATGGA CAGAAGAGGT TCCTTCCTGC CAAGTGGTAA AATGTTCAAG CCTGGCAGTT CCGGGAAAGA TCAACATGAG CTGCAGTGGG GAGCCCGTGT TTGGCACTGT GTGCAAGTTC GCCTGTCCTG AAGGATGGAC GCTCAATGGC TCTGCAGCTC GGACATGTGG AGCCACAGGA CACTGGTCTG GCCTGCTACC TACCTGTGAA GCTCCCACTG AGTCCAACAT TCCCTTGGTA GCTGGACTTT CTGCTGCTGG ACTCTCCCTC CTGACATTAG CACCATTTCT CCTCTGGCTT CGGAAATGCT TACGGAAAGC AAAGAAATTT GTTCCTGCCA GCAGCTGCCA AAGCCTTGAA TCAGACGGAA GCTACCAAAA GCCTTCTTAC ATCCTTTAAG TTCAAAAGAA TCAGAAACAG GTGCATCTGG GGAACTAGAG GGATACACTG AAGTTAACAG AGACAGATAA CTCTCCTCGG GTCTCTGGCC CTTCTTGCCT ACTATGCCAG ATGCCTTTAT GGCTGAAACC GCAACACCCA TCACCACTTC AATAGATCAA AGTCCAGCAG GCAAGGACGG CCTTCAACTG AAAAGACTCA GTGTTCCCTT TCCTACTCTC AGGATCAAGA AAGTGTTGGC TAATGAAGGG AAAGGATATT TTCTTCCAAG CAAAGGTGAA GAGACCAAGA CTCTGAAATC TCAGAATTCC TTTTCTAACT CTCCCTTGCT CGCTGTAAAA TCTTGGCACA GAAACACAAT ATTTTGTGGC TTTCTTTCTT TTGCCCTTCA CAGTGTTTCG ACAGCTGATT ACACAGTTGC TGTCATAAGA ATGAATAATA ATTATCCAGA GTTTAGAGGA AAAAAATGAC TAAAAATATT ATAACTTAAA AAAATGACAG ATGTTGAATG CCCACAGGCA AATGCATGGA GGGTTGTTAA TGGTGCAAAT CCTACTGAAT GCTCTGTGCG AGGGTTACTA TGCACAATTT AATCACTTTC ATCCCTATGG GATTCAGTGC TTCTTAAAGA GTTCTTAAGG ATTGTGATAT TTTTACTTGC ATTGAATATA TTATAATCTT CCATACTTCT TCATTCAATA CAAGTGTGGT AGGGACTTAA AAAACTTGTA AATGCTGTCA ACTATGATAT GGTAAAAGTT ACTTATTCTA GATTACCCCC TCATTGTTTA TTAACAAATT ATGTTACATC TGTTTTAAAT TTATTTCAAA AAGGGAAACT ATTGTCCCCT AGCAAGGCAT GATGTTAACC AGAATAAAGT TCTGAGTGTT TTTACTACAG TTGTTTTTTG AAAACATGGT AGAATTGGAG AGTAAAAACT GAATGGAAGG TTTGTATATT GTCAGATATT TTTTCAGAAA TATGTGGTTT CCACGATGAA AAACTTCCAT GAGGCCAAAC GTTTTGAACT AATAAAAGCA TAAATGCAAA CACACAAAGG TATAATTTTA TGAATGTCTT TGTTGGAAAA GAATACAGAA AGATGGATGT GCTTTGCATT CCTACAAAGA TGTTTGTCAG ATGTGATATG TAAACATAAT TCTTGTATAT TATGGAAGAT TTTAAATTCA CAATAGAAAC TCACCATGTA AAAGAGTCAT CTGGTAGATT TTTAACGAAT GAAGATGTCT AATAGTTATT CCCTATTTGT TTTCTTCTGT ATGTTAGGGT GCTCTGGAAG AGAGGAATGC CTGTGTGAGC AAGCATTTAT GTTTATTTAT AAGCAGATTT AACAATTCCA AAGGAATCTC CAGTTTTCAG TTGATCACTG GCAATGAAAA ATTCTCAGTC AGTAATTGCC AAAGCTGCTC TAGCCTTGAG GAGTGTGAGA ATCAAAACTC TCCTACACTT CCATTAACTT AGCATGTGTT GAAAAAAAAA GTTTCAGAGA AGTTCTGGCT GAACACTGGC AACGACAAAG CCAACAGTCA AAACAGAGAT GTGATAAGGA TCAGAACAGC AGAGGTTCTT TTAAAGGGGC AGAAAAACTC TGGGAAATAA GAGAGAACAA CTACTGTGAT CAGGCTATGT ATGGAATACA GTGTTATTTT CTTTGAAATT GTTTAAGTGT TGTAAATATT TATGTAAACT GCATTAGAAA TTAGCTGTGT GAAATACCAG TGTGGTTTGT GTTTGAGTTT TATTGAGAAT TTTAAATTAT AACTTAAAAT ATTTTATAAT TTTTAAAGTA TATATTTATT TAAGCTTATG TCAGACCTAT TTGACATAAC ACTATAAAGG TTGACAATAA ATGTGCTTAT GTTT-3'(FRAG.NO:_)(SEQ ID NO:11848)

5'-CCT TGC CTG CTG G-3' (FRAG. NO: 1739) (SEQ ID NO:11121)
5'-GTT GTC CC-3' (FRAG. NO: 1740) (SEQ ID NO:11122)
5'-GTT CTT GGC TTC TTC TGT C-3' (FRAG. NO:1080) (SEQ ID NO:10457)
5'-GGC TGG TGG-3' (FRAG. NO:1083) (SEQ ID NO:10461)
5'-CGT TGG CTT CTC GTT GTC CC-3' (FRAG. NO:1081) (SEQ ID NO:10458)
5'-TGT GGG CTT CTC GTT GTC CC-3' (FRAG. NO:1082) (SEQ ID NO:10459)
5'-CCC TTC GGG GGC TGG TGG-3' (FRAG. NO:1083) (SEQ ID NO:10460)
5'-GGC CGT CCT TGC CTG CTG G-3' (FRAG. NO:1084) (SEQ ID NO:10462)

Human P Selectin Fragments

5'-TTT TCT CTT TCG CTT TCT TTT CGT CTC CTG TTC CTC CTT TT TTG CTG TTT TTT CTC CTT CTT CTC TCC TTT CTT TTC-3' (FRAG. NO: 1741) (SEQ ID NO:11123)
5'-TCC TTT CTT TTC-3' (FRAG. NO: 1742) (SEQ ID NO:11124)]
5'-CTC CTT TT-3' (FRAG. NO:1743) (SEQ ID NO:11125)
5'-TTT TCT CTT TCG CTT TCT TTT CGT CTC CTG TTC CTC CTT TT-3'(FRAG.NO:1085)(SEQ ID NO:10463)
5'-TTG CTG TTT TTT CTC CTT CTT CTC TCC TTT CTT TTC-3' (FRAG. NO:1086) (SEQ ID NO:10464)

Human Endothelial Monocyte Activating Factor

Nucleic Acid & Antisense Oligonucleotide Fragments
5'-TTT TCT CTT TCG CTT TCT TTT CGT CTC CTG TTC CTC CTT TT TTG CTG TTT TTT CTC CTT CTT CTC TCC TTT CTT TTC-3' (FRAG. NO: 1744) (SEQ ID NO:11126)
5' -CC TTT CTT TTC (FRAG. NO: 1745) (SEQ ID NO:11127)
5'-CTG TTC CTC CTT TT-3' (FRAG. NO:1746) (SEQ ID NO:11128)
5'-TTT TCT CTT TCG CTT TCT TTT CGT CTC CTG TTC CTC CTT TT-3'(FRAG.NO:1087)(SEQ ID NO:10465)
5'-TTG CTG TTT TTT CTC CTT CTT CTC TCC TTT CTT TTC-3' (FRAG. NO:1088) (SEQ ID NO:10466)

Human IL3 Nucleic Acid and Antisense Oligonucleotide Fragments

5'-CTC TGT CTT GTT CTG GTC CTT CGT GGG GCT CTG TGT CGC GTG G GTG CGG CCG TGG CC GGC GGB CCB GGB GTT GGB GCB GGB GCB GGB CGG GCB GGC GGC TCB TGT TTG GBT CGG CBG GBG GCB CTC (FRAG. NO: 1747) (SEQ ID NO:11129)]
5'-G GBG GCB CTC-3' (FRAG. NO: 1748) (SEQ ID NO:11130)
5'-GT GGG GCT CTG-3' (FRAG. NO:1749) (SEQ ID NO:11131)
HUMIL3AAS1: 5'-CTC TGT CTT GTT CTG GTC CTT CGT GGG GCT CTG-3' (FRAG.NO:1089)(SEQ ID NO:10467)
HUMIL3AAS2: 5'-TGT CGC GTG G GTG CGG CCG TGG CC-3' (FRAG. NO:1090) (SEQ ID NO:10468)
GGC GGB CCB GGB GTT GGB GCB GGB GCB GGB CGG GCB GGC GGC TCB TGT TTG GBT CGG CBG GBG GCB CTC (FRAG. NO:1091) (SEQ ID NO:10469)

Human IL3 Receptor Nucleic Acid and Antisense Oligonucleotide Fragments

5'-TCT GGG GTG TCC TGG CCT TCG TGG TTC CTC TTC CTT CGT TTG CCG TCC GCG GGG GCC CCC GGG CCT GGC TGC GCT CCT GCC CCG CCT CTT TCC CGG GCT CTT GCG CTG GGG GGT GCT CC CGT GTG TTT GCG CCC TC CTC CTG GTC GCG CTT GTC GTT TTG GGG CCG GCT TTG CCC GCC TCC CGG CGC CTG GCC CGG CC TTC CTG GGC TGC GTG CGC GTT CTG TTC TTC TTC CTG GCT CTG GGG TGT CCT GGC CTT CGT GGT TCC TCT TCC TTC GTT TGC CGT CCG CGG GGG CCC CCG GGC CT GGC TGC GCT CCT GCC CCG CCT CTT TCC CGG GCT CTT GCG CTG GGG GGT GCT CCC GTG TGT TTG CGC CCT CCT CCT GGT CGC GCT TGT CGT TTT GG GGC CGG CTT TGC CCG CCT CCC GGC GCC TGG CCC GGC CTT CCT GGG CTG CGT GCG CGT TCT GTT CTT CTT CCT GGC GCA GGA GAC AGG GCA GGG CGA TCA GGA GCA GCG TGA GCC AAA GGA GGA CCA TCG GGA ACG CAG CTC CGG AAC GCA GGA CAG AGG TGC C GC BGG BGB CBG GGC BGG GCG BTC BGG BGC BGC GTG BGC CBB BGG BGG BCC BTC GGG BBC GCB GCT CCG GBB CGC BGG BCB GBG GTG CC-3' (FRAG. NO: 1750) (SEQ ID NO:11132)
GBG GTG CC-3' (FRAG. NO: 1751) (SEQ ID NO:11133)
5'- GCC CCG C-3' (FRAG. NO:1752) (SEQ ID NO:11134)
5'-TCTGGGGTGTCCTG (FRAG. NO:1092) (SEQ ID NO:10470)
5'-GCCTTCGTGGTTCC (FRAG. NO:1093) (SEQ ID NO:10471)
5'-TCTTCCTTCGTTTGC (FRAG. NO:1094) (SEQ ID NO:10472)
5'-CGTCCGCGGGGGCCCCCGGGCCT (FRAG. NO:1095) (SEQ ID NO:10474)
5'-GGC TGC GCT CCT GCC CCG C (FRAG. NO:1096) (SEQ ID NO:10473)
5'-CTCTTTCCCGGGCTCTT (FRAG. NO:1097) (SEQ ID NO:10475)
5'-GCGCTGGGGGGTGCTCC (FRAG. NO:1098) (SEQ ID NO:10476)
5'-CGTGTGTTTGCGCCCTCCTCCTGGTCGC (FRAG. NO:1099) (SEQ ID NO:10477)
5'-GCTTGTCGTTTTGG (FRAG. NO:1100) (SEQ ID NO:10478)
5'-GGCCGGCTTTGCCCGCCTCCC (FRAG. NO:1101) (SEQ ID NO:10479)
5'-GGCGCCTGGCCCGGCC (FRAG. NO:1102) (SEQ ID NO:10480)
5'-TTCCTGGGCTGCGTGCGC (FRAG. NO:1103) (SEQ ID NO:10481)
5'-GTTCTGTTCTTCTTCCTGGC (FRAG. NO:1104) (SEQ ID NO:10482)
5'-GCB GGB GBC BGG GCB GGG CGB TCB GGB GCB GCG TGB GCC BBB GGB GGB CCB TCG GGB BCG CBG CTC CGG BBC GCB GGB 5'-CBG BGG TGC C (FRAG. NO:1105) (SEQ ID NO:12488)

Human IL-4 Nucleic Acid and Antisense Oligonucleotide Fragments

5'-CTC TGG TTG GCT TCC TTC GCC GGC BCB TGC TBG CBG GBB GBB CBG BGG GGG BBG CBG TTG GGB GGT GBG BCC CBT TBB TBG GTG TCG B-3' (FRAG. NO: 1753) (SEQ ID NO:11135)
5'-GCC GGC BCB-3' (FRAG. NO: 1754) (SEQ ID NO:11136)
5'-T TCC TTC-3' (FRAG. NO:1755) (SEQ ID NO:11137)
5'-CTC TGG TTG GCT TCC TTC-3' (FRAG. NO:1106) (SEQ ID NO:10484)
5'-GCCGGCBCBTGCTBGCBGGBBGBBCBGBGGGGGBBGCBGTTGGGBGGTGBGBCCCBTTBBTBGGTGTCGB-3' (FRAG. NO:1107) (SEQ ID NO:10485)

Human IL4 Receptor Nucleic Acid and Antisense Oligonucleotide Fragment

5'-TCT GCC CTG TCC GCC GGC TCT TCG GTG GCT CGG CCC CGC TCC TTG TCT TGC CGC GGG TTG GTT CCT GGG CCT GGT TCT TGC GGG CGT TTC GGT CTG CTG GCT GGT CTG GGC CCG CGG TGC GGC GGG TGG CTT GCT GTT CTG CCT GGG CTC TCC CCT CTC CTC CTT TTC TCC CTT CCT CTG TCT TGC CTC CTT CCT CTG GGT CCT CTT GGC CTG GGC GCT CTT CCC CTC GGG CGG CTG CGG GCG CTC GTG CTG CCT GGT CCG CTC CCT GGG GGT GCT CCT TCC CTT TCC CCG CTC GTG GGG TTT GCG GGG CTG GGC TGC CCT GGG GGG TCT GGG CCT TTT GGG GTC GGC TGG CTG CTG CTT CGG GCC GCC TGG GCT TCC CTG TGC CCC

TTT CCT CTG CTG GGT CCC CCT CCC GTT CCA AGC TGC ACC GCA CAG ACC GGC GCT ACA GGA CAG AGC CAG GCA AGC ACC CAT GGG GAT CCA GGC CCA GCT GTT CCB BGC TGC BCC GCB CBG BCC GGC GCT BCB GGB CBG BGC CBG GCB BGC BCC CBT GGG GBT CCB GGC CCB GCT G -3'(FRAG. NO: 1756)(SEQ ID NO:11138)
5'-TCTGCGC-3' (FRAG. NO: 1757) (SEQ ID NO:11139)
5'-CCT GCT CCT GGG G (FRAG. NO:1758) (SEQ ID NO:11140)
5'-TCTGCGCGCCCCTGCTCC (FRAG. NO:1108) (SEQ ID NO:10486)
5'-CGCCCGGCTTCTCT (FRAG. NO:1109) (SEQ ID NO:10487)
5'-CGTGTGGGCTTCGG (FRAG. NO:1110) (SEQ ID NO:10488)
5'-CCCCGCGCCTCCGTTGTTCTC (FRAG. NO:1111) (SEQ ID NO:10489)
5'-TGCTCGCTGGGCTTG (FRAG. NO:1112) (SEQ ID NO:10490)
5'-GGTTTCCTGGGGCCCTGGGTTTC (FRAG. NO:1113) (SEQ ID NO:10491)
5'-TCTGCCGGGTCGTTTTC (FRAG. NO:1114) (SEQ ID NO:10492)
5'-GGGTGCTGGCTGCG (FRAG. NO:1115) (SEQ ID NO:10493)
5'-CTTGGTGCTGGGGCTCC (FRAG. NO:1116) (SEQ ID NO:10494)
5'-GGCGGCTGCGGGCTGGGTTGGG (FRAG. NO:1117) (SEQ ID NO:10495)
5'-CTTGGCTGGTTCCTGGCCTCGGG (FRAG. NO:1118) (SEQ ID NO:10496)
5'-CCTCCTCCTCCTCCTCGCTCCCTTTTTCTTCCTCT (FRAG. NO:1119) (SEQ ID NO:10497)
5'-TCCCTGCTGCTCTC (FRAG. NO:1120) (SEQ ID NO:10498)
5'-TGCCCTCCCTTCCCTCCTGG (FRAG. NO:1121) (SEQ ID NO:10499)
5'-GGTGCCTCCTTGGGCCCTGC (FRAG. NO:1122) (SEQ ID NO:10500)
5'-GGCTGCTCCTTGCCCC (FRAG. NO:1123) (SEQ ID NO:10501)
5'-CTCTGGGTCGGGCTGGC (FRAG. NO:1124) (SEQ ID NO:10502)
5'-GGGGCGTCTCTGTGC (FRAG. NO:1125) (SEQ ID NO:10503)
5'-CTGGCCTGGGTGCC (FRAG. NO:1126) (SEQ ID NO:10504)
5'-GCCTCTCCTGGGGGGGTGGCTCCCTGTCC (FRAG. NO:1127) (SEQ ID NO:10505)
5'-CCTTTTCCCCCGGCTCC (FRAG. NO:1128) (SEQ ID NO:10506)
5'-GTGGGGGCTTTGGC (FRAG. NO:1129) (SEQ ID NO:10507)
5'-GGG GGT CTG TGG CCT GCT CCT GGG G (FRAG. NO:1130) (SEQ ID NO:10508)
5'-AGGGGTCTGGGGCCCTC (FRAG. NO:1131) (SEQ ID NO:10509)
5'-TTTTGGGGGTCTGGCTTG (FRAG. NO:1132) (SEQ ID NO:10510)
5'-GCCTGGCTGCCTTCC (FRAG. NO:1133) (SEQ ID NO:10511)
5'-GGGGCCTGCCGTGGGGC (FRAG. NO:1134) (SEQ ID NO:10512)
5'-TGTCCTCTGTTGCTCCCCTT (FRAG. NO:1135) (SEQ ID NO:10513)
5'-TGCCTGCTGTCTGG (FRAG. NO:1136) (SEQ ID NO:10514)
5'-GGTTCCCGCCTTCCCT (FRAG. NO:1137) (SEQ ID NO:10515)
5'-GTT CCC AGA GCT TGC CAC CTG CAG CAG GAC CAG GCA GCT CAC AGG GAA CAG GAG CCC AGA GCA AAG CCA CCC CAT TGG GAG ATG CCA AGG CAC CAG GCT G (FRAG. NO:1138) (SEQ ID NO:10516)
5'-GTT CCC BGB GCT TGC CBC CTG CBG CBG GBC CBG GCB GCT CBC BGG GBB CBG GBG CCC BGB GCB BBG CCB CCC CBT TGG GBG BTG CCB BGG CBC CBG GCT G-3' (FRAG. NO:1139) (SEQ ID NO:10517)

Human IL5 Nucleic Acid and Antisense Oligonucleotide Fragments

5'-TCCCTGTTTC CCCCCTTTCG TTCTGCGTTT GCCTTTGGCG TTTTTTGTTT GTTTTCTCTC TCCGTCTTTC TTCTCCCCT GTGGGBBTTT CTGTGGGGBT GGCBTBCBCG TBGGCBGCTC CBBGBGCTBG CBBBCTCBBB TGCBGBBGCB TCCTCBTGGC TCTGBBBCGG TGGGAATTTC TGTGGGGBTG GCATACACGT AGGCAGCTCC AAGAGCTAGC AAACTCAAAT GCAGAAGCATC CTCATGGCTC TGAAACG-3' (FRAG. NO: 1759) (SEQ ID NO:11141)
5'-GCC CCG GG-3' (FRAG. NO: 1760) (SEQ ID NO:11142)
5'-G GGT TTC T-3' (FRAG. NO: 1761) (SEQ ID NO:11143)
5'-GTG GGG BTG GC-3' (FRAG. NO: 1762) (SEQ ID NO:11144)
5'-CCB BGB GCT BGC-3' (FRAG. NO: 1763) (SEQ ID NO:11145)
5'-TCC CTG TTT CCC CCC TTT-3' (FRAG. NO:1140) (SEQ ID NO:10518)
5'-CGT TCT GCG TTT GCC TTT GGC-3' (FRAG. NO:1141)(SEQ ID NO:10519)
5'-GTT TTT TGT TTG TTT TCT-3' (FRAG. NO:1142)(SEQ ID NO:10520)
5'-CTC TCC GTC TTT CTT CTC C-3' (FRAG. NO:1143) (SEQ ID NO:10521)
5'-CCT CCT GCC TGT GTC CCT GCT CCC C-3' (FRAG. NO:1144) (SEQ ID NO:10522)
5'-GAG GGT TTC TGG CTT CCT CTC T-3' (FRAG. NO:1145) (SEQ ID NO:10523)
5'-TGT CTC TCT GTC CTT TTG TT-3' (FRAG. NO:1146) (SEQ ID NO:10524)
5'-TGT TGT GCG GCC TGG TGC TGC CCT GCC CCG GG-3' (FRAG. NO:1147) (SEQ ID NO:10525)
5'-GTG GGA ATT TCT GTG GGG BTG GCA TAC ACG TAG GCA GCT CCA AGA GCT AGC AAA CTC AAA TGC AGA AGC ATC CTC ATG GCT CTG AAA CG-3' (FRAG. NO: 1764) (SEQ ID NO:11146)
5'-GTG GGB BTT TCT GTG GGG BTG GCB TBC BCG TBG GCB GCT CCB BGB GCT BGC BBB CTC BBB TGC BGB BGC BTC CTC BTG GCT CTG BBB CG-3' (FRAG. NO:1148) (SEQ ID NO:10526)

Human IL-5 Receptor Nucleic Acid and Antisense Oligonucleotide Fragments

5'-CTCAGTGGCC CCCAAAAGGA TGAGTAATAC ATGCGCCACG ATGATCATAT CCTTTTTACT ATGAGGCCGT GTCTGTCGTG TCTTTCCTTT GCTCTTGGTG TGTCTTTGCT GTGCCCTGCC TCTCTGCCCG TGTCTGTCGT GTCTTTCCTT TGCTCTTGGT GTGTCTTTGC TGTGCCCTGC CTCTCTGCC CGTGTCTGTC GTGTCTTTCC TTTGCTCTTG GTGTGTCTTT GCTGTGCCCT GCCTCTCTGC-3' (FRAG. NO: 1765) (SEQ ID NO:11147)
5'-CCG TGT C-3' (FRAG. NO: 1766) (SEQ ID NO:11148)
5'-GCCCTGCC-3' (FRAG. NO: 1767) (SEQ ID NO:11149)
5'-CCG TGT CTG TCG TGT CT-3' (FRAG. NO:1149) (SEQ ID NO:10527)
5'-TTCCTTTGCTCTTG-3' (FRAG. NO:1150) (SEQ ID NO:10528)
5'-GTGTGTCTTTGCTGT-3' (FRAG. NO:1151) (SEQ ID NO:10529)
5'-GCCCTGCCTCTCTGC-3' (FRAG. NO:1152) (SEQ ID NO:10530)
5'-CT CBGTGGCCCC CBBBBGGBTG BGTBBTBCBT GCGCCBCGBT GBTCBTBTCC TTTTTBCTBT GBGG (FRAG. NO: 1768) (SEQ ID NO:11150)

Human IL-6 Receptor Fragments

5'-GGGGGTGGCT TCCTGCCGCG TCTCTGGGCC GTCCCGTCCC TCGGCCCCGC GCCGCGCTCG GCTCCTCTCC CTCTGGCCCG GCTCGGGGCG GGGCGGGGCG GTGGGCGGGC GGCGCTGCCC TGCGCGCGGC GCTGGCCCCT GCTGGCCGTC GGCTGCGCGC TGCTGGCTGC CCTGCTGGCC GCGCCGGGGC CTGTCCGCCT CTGCGGGCGC TGTCTCCTGG CTTGTCTTCC GGCTCTTCTG CTGGGGTGGG GCTGGGCGGC CGGCCCGGTG CTGGGGCTCC TCGGGGGGGG GGGCTCTTCC GGGCTGTCTC CCTCCGGGGC GGGGGTTTCT GGCCGTGGGG GTCTTGCCTG GCCTCCGGGC TCCTGCTTGT CTTGCCTTCC TTCTCTGGTC GGTTGTGGCT CGGGGCTCCG TGGGTCCCTG GCGCCCGTTT GTGTTTTGTC TTTTCCCCTG GCGTCCCTGT GCCCCTCTCC TCTCCTTCCT CTGCTTCTCG CTCTCCTTTG TGGGGCCCTC CCTGCTGCTC TTGGTTTTGG GCTTTTTTTC TCTTCCTCCT TTTTCGTGCG TGGGCCTCCG CACGCCTCTT GCCACCTCCT GCGCAGGGCA GCGCCTTGG GGCCAGCGCC GCTCCCGGCG CGGCCAGCAG GGCAGCCAGC AGCGCGCAGC CGACGGCCAG CATGCTTCCT CCTCGGCTAC CACTCCATGG TCCCGCAGAG GCGGACAGGC GCBCGCCTC TTGCCBCCTC CTGCGCBGGG CBGCGCCTTG GGGCCBGCGC CGCTCCCGGC GCGGCCBGCB GGGCBGCCBG CBGCGCGCBG CCGBCGGCCB GCBTGCTTCC TCCTCGGCTB CCBCTCCBTG GTCCCGCBGB GGCGGBCBGG C-3' (FRAG. NO: 1769) (SEQ ID NO:11151)

5'-CCCGGCGC-3' (FRAG. NO:1184) (SEQ ID NO:10562)

5'-GGCCBGCBGG-3' (FRAG. NO:1186) (SEQ ID NO:10564)

5'-GCBGCCBGCBGCG-3' (FRAG. NO: 1770) (SEQ ID NO:11152)

5'-C GCBGCCGBCGGCC -3' (FRAG. NO: 1771) (SEQ ID NO:11153)

5'-GGGGGTGGCTTCCTGCC3'- (FRAG. NO:1153) (SEQ ID NO:10531)

5'-GCGTCTCTGGGCCGTCCC-3' (FRAG. NO:1154) (SEQ ID NO:10532)

5'-GTCCCTCGGCCCCGCGCCGCGCTCGGCTCCTCTCCC-3' (FRAG. NO:1155) (SEQ ID NO:10533)

5'-TCTGGCCCGGCTC-3' (FRAG. NO:1156) (SEQ ID NO:10534)

5'-GGGGCGGGGCGGGGCGGTGGGCGGGC-3' (FRAG. NO:1157) (SEQ ID NO:10535)

5'-GGCGCTGCCCTGCGC-3' (FRAG. NO:1158) (SEQ ID NO:10536)

5'-GCGGCGCTGGCCCC-3' (FRAG. NO:1159) (SEQ ID NO:10537)

5'-TGCTGGCCGTCGGCTGCGCGCTGCTGGCTGCCCT-3' (FRAG. NO:1160) (SEQ ID NO:10538)

5'-GCTGGCCGCGCCGGG-3' (FRAG. NO:1161) (SEQ ID NO:10539)

5'-GCCTGTCCGCCTCTGCGGG-3' (FRAG. NO:1162) (SEQ ID NO:10540)

5'-CGCTGTCTCCTGGC-3' (FRAG. NO:1163) (SEQ ID NO:10541)

5'-TTGTCTTCCGGCTCT-3' (FRAG. NO:1164) (SEQ ID NO:10542)

5'-TCTGCTGGGGTGGG-3' (FRAG. NO:1165) (SEQ ID NO:10543)

5'-GCTGGGCGGCCGGCCCGGT-3' (FRAG. NO:1166) (SEQ ID NO:10544)

5'-GCTGGGGCTCCTCGGGGGG-3' (FRAG. NO:1167) (SEQ ID NO:10545)

5'-GGGGGCTCTTCCGG-3' (FRAG. NO:1168) (SEQ ID NO:10546)

5'-GCTGTCTCCCTCCGGG-3' (FRAG. NO:1169) (SEQ ID NO:10547)

5'-GCGGGGGTTTCTGGCC-3' (FRAG. NO:1170) (SEQ ID NO:10548)

5'-GTGGGGGTCTTGCC-3' (FRAG. NO:1171) (SEQ ID NO:10549)

5'-TGGCCTCCGGGCTCC-3' (FRAG. NO:1172) (SEQ ID NO:10550)

5'-TGCTTGTCTTGCCTTCCTTC-3' (FRAG. NO:1173) (SEQ ID NO:10551)

5'-TCTGGTCGGTTGTGGCTCG-3' (FRAG. NO:1174) (SEQ ID NO:10552)

5'-GGGCTCCGTGGGTCCCTGGC-3' (FRAG. NO:1175) (SEQ ID NO:10553)

5'-GCCCGTTTGTGTTTTGTC-3' (FRAG. NO:1176) (SEQ ID NO:10554)

5'-TTTTCCCCTGGCGT-3' (FRAG. NO:1177) (SEQ ID NO:10555)

5'-CCCTGTGCCCCTCTCCTCTCCTTCCTCTGCTTCTC-3' (FRAG. NO:1178) (SEQ ID NO:10556)

5'-GCTCTCCTTTGTGGG-3' (FRAG. NO:1179) (SEQ ID NO:10557)

5'-GCCCTCCCTGCTGCT-3' (FRAG. NO:1180) (SEQ ID NO:10558)

5'-CTTGGTTTTGGGCT-3' (FRAG. NO:1181) (SEQ ID NO:10559)

5'-TTTTTTCTCTTCCTCCTTTTTC-3' (FRAG. NO:1182) (SEQ ID NO:10560)

5'-GTGCGTGGGCCTCC-3' (FRAG. NO:1183) (SEQ ID NO:10561)

5'-GCACGCCTCT TGCCACCTCC TGCGCAGGGC AGCGCCTTGG GGCCAGCGCC GCTCCCGGCG CGGCCAGCAG GGCAGCCAGC AGCGCGCAGC CGACGGCCAG CATGCTTCCT CCTCGGCTAC CACTCCATGG TCCCGCAGAG GCGGACAGGC-3' (FRAG. NO:1185) (SEQ ID NO:10563)

5'-GCBCGCCTCT TGCCBCCTCC TGCGCBGGGC BGCGCCTTGG GGCCBGCGCC GCTCCCGGCG CGGCCBGCBG GGCBGCCBG CBGCGCGCBG CCGBCGGCCB GCBTGCTTCC TCCTCGGCTB CCBCTCCBTG GTCCCGCBGB GGCGGBCBGG C-3' (FRAG. NO:1187) (SEQ ID NO:10565)

<u>Human IL-6 Nucleic Acid and Antisense Oligonucleotide Fragments</u>

5'–GGGGGTGGCT TCCTGCCGCG TCTCTGGGCC GTCCCGTCCC TCGGCCCCGC GCCGCGCTCG GCTCCTCTCC CTCTGGCCCG GCTCGGGGCG GGGCGGGGCG GTGGGCGGGC GGCGCTGCCC TGCGCGCGGC GCTGGCCCCT GCTGGCCGTC GGCTGCGCGC TGCTGGCTGC CCTGCTGGCC GCGCCGGGGC CTGTCCGCCT CTGCGGGCGC TGTCTCCTGG CTTGTCTTCC GGCTCTTCTG CTGGGGTGGG GCTGGGCGGC CGGCCCGGTG CTGGGGCTCC TCGGGGGGGG GGGCTCTTCC GGGCTGTCTC CCTCCGGGGC GGGGGTTTCT GGCCGTGGGG GTCTTGCCTG GCCTCCGGGC TCCTGCTTGT CTTGCCTTCC TTCTCTGGTC GGTTGTGGCT CGGGGCTCCG TGGGTCCCTG GCGCCCGTTT GTGTTTTGTC TTTTCCCCTG GCGTCCCTGT GCCCCTCTCC TCTCCTTCCT CTGCTTCTCG CTCTCCTTTG TGGGGCCCTC CCTGCTGCTC TTGGTTTTGG GCTTTTTTTC TCTTCCTCCT TTTTCGTGCG TGGGCCTCC GCACGCCTCT TGCCACCTCC TGCGCAGGGC AGCGCCTTGG GGCCAGCGCC GCTCCCGGCG CGGCCAGCAG GGCAGCCAGC AGCGCGCAGC CGACGGCCAG CATGCTTCCT CCTCGGCTAC CACTCCATGG TCCCGCAGAG GCGGACAGGC GCBCGCCTC TTGCCBCCTC CTGCGCBGGG CBGCGCCTTG GGGCCBGCGC CGCTCCCGGC GCGGCCBGCB GGGCBGCCBG CBGCGCGCBG CCGBCGGCCB GCBTGCTTCC TCCTCGGCTB CCBCTCCBTG GTCCCGCBGB GGCGGBCBGG C-3' (FRAG. NO:1772) (SEQ ID NO:11154)

5'-GGGGCBGG-3' (FRAG. NO:1773) (SEQ ID NO:11155)

5'-GBBGGCBG CBGGC-3' (FRAG. NO:1774) (SEQ ID NO:11156)

5'-CCBGGBGCBG CCCC-3' (FRAG. NO:1775) (SEQ ID NO:11157)

5'-BGGG BGBBGGCBBC-3' (FRAG. NO:1776) (SEQ ID NO:11158)

5'-GCT TCT CTT TCG TTC CCG GTG GGC TCG-3' (FRAG. NO:1188) (SEQ ID NO:10566)

5'-GTG GCT GTC TGT GTG GGG CGG CT-3' (FRAG. NO:1189) (SEQ ID NO:10567)

5'-GTG CCT CTT TGC TGC TTT C-3' (FRAG. NO:1190) (SEQ ID NO:10568)

5'-GAT TCT TTG CCT TTT TCT GC-3' (FRAG. NO:1191) (SEQ ID NO:10569)

5'-CTCCTGGGGG TBCTGGGGCB GGGBBGGCBG CBGGCBBCBC CBGGBGCBGC CCCBGGGBGB BGGCBBCTGG BCCGBBGGCG CTTGTGGBGB BGGBGTTCBT BGCTGGGCTC CTGGBGGGGB GBTBGBGC-3'(FRAG..NO:1777)(SEQ ID NO:11159)

Human Monocyte-derived Neutrophil Chemotactic Factor Nucleic Acid and Antisense Oligonucleotide Fragments

5'-GGGGTGGBBB GGTTTGGBGT BTGTCTTTBT GCBCTGBCBT CTBBGTTCTT TBGCBCTCCT TGGCBBBBCT GCBCCTTCBC BCBGBGCTGC BGBBBTCBGG BBGGCTGCCB BGBGBGCCBC GGCCBGCTTG GBBGTCBTGT TTBCBCBCBG TGBGBTGGTT CCTTCCGGGC TTGTGTGCTC TGCTGTCTCT TGGTTCCTTC CGGTGGTTTC TTCCTGGCTC TTGTCCTTTC TCTTGG CCCT TGGC-3' (FRAG. NO:1778) (SEQ ID NO:11160)

5'-GGBGT BTG-3' (FRAG. NO:1779) (SEQ ID NO:11161)

5'-GCBCTGBCBT CT-3' (FRAG. NO:1780) (SEQ ID NO:11162)

5'-CCG GTG G-3' (FRAG. NO:1781) (SEQ ID NO:11163)

5'-GG CCC TTG GC-3' (FRÀG. NO:1782) (SEQ ID NO:11164)

5'-GCT TGT GTG CTC TGC TGT CTC T-3' (FRAG. NO:1192) (SEQ ID NO:10570)

5'-TGG TTC CTT CCG GTG GTT TCT TCC TGG CTC TTG TCC T-3' (FRAG. NO:1193) (SEQ ID NO:10571)

5'-TTC TCT TGG CCC TTG GC-3' (FRAG. NO:1194) (SEQ ID NO:10572)

5'-GGGGTGGBBB GGTTTGGBGT BTGTCTTTBT GCBCTGBCBT CTBBGTTCTT TBGCBCTCCT TGGCBBBBCT GCBCCTTCBC BCBGBGC-3' (FRAG. NO:1783) (SEQ ID NO:11165)

Human Neutrophil Elastase (Medullasin) Nucleic Acid and Antisense Oligonucleotide Fragments

5'-GGGCTCCCGC CGCGBGBGGT TBTGGGCTCC CBGGBCCBCC CGCBCCGCGC GGBCGTTTBC BTTCGCCBCG CBGTGCGCGG CCGBCBTGBC GBBGTTGGGC GCBBTCBGGG TGGCGCCGCB GBBGTGGCCT CCGCGCBGCT GCBGGGBCBC CBTGBBGGGC CBCGCGTGGG GCCGCGCTCG CCGGCCCCCC BCBBTCTCCG BGGCCBGCGC GGTGCCCCCC BGCBGCBBGG CCGGCBGGBC BCBGGCGBGG BGBCBCGCGB GTCGGCGGCC GBGGGTCBTG GTGGGGCTGG GGCTCCGGGG TCTCTGCCCC TCCGTGCTGG TGGGGCTGGG GCTCCGGGG TCTCTGCCCC TCCGTGCCGC GTGGGGCCGC GCTCGCCGGC CCCCCCCTGC CGGGTGGGCT CCCGCCGCGC GCCGGCCTGC CGGCCCCTCG TGGGTCCTGC TGGCCGGGTC CGGGTCCCGG GGGTGGGGCG CGBGTCGGCG GCCGBGGGTC-3' (FRAG. NO:1784) (SEQ ID NO:11166)

5'-GG TGG GGC-3' (FRAG. NO:1785) (SEQ ID NO:11167)

5'-G GGG CCG -3' (FRAG. NO:1786) (SEQ ID NO:11168)

5'- GGC CGG GTC CGG G-3' (FRAG. NO:1787) (SEQ ID NO:11169)

5'-TGG TGG GGC TGG GGC TCC GGG GTC TCT GCC CCT CCG TGC-3' (FRAG.NO:1195)(SEQ ID NO:10573)

5'-CGC GTG GGG CCG CGC TCG CCG GCC CCC C-3' (FRAG. NO:1196) (SEQ ID NO:10574)

5'-CCT GCC GGG TGG GCT CCC GCC GCG-3' (FRAG. NO:1197) (SEQ ID NO:10575)

5'-CGC CGG CCT GCC GGC CCC TC-3' (FRAG. NO:1198) (SEQ ID NO:10576)

5'-GTG GGT CCT GCT GGC CGG GTC CGG GTC CCG GGG GTG GGG-3'(FRAG.NO:1199)(SEQ ID NO:10577)

5'-CGC GBG TCG GCG GCC GBG GGT C-3' (FRAG. NO:1200) (SEQ ID NO:10578)

5'-GGGCTCCCGC CGCGBGBGGT TBTGGGCTCC CBGGBCCBCC CGCBCCGCGC GGBCGTTTBC BTTCGCCBCG CBGTGCGCGG CCGBCBTGBC GBBGTTGGGC GCBBTCBGGG TGGCGCCGCB GBBGTGGCCT CCGCGCBGCT GCBGGGBCBC CBTGBBGGGC CBCGCGTGGG GCCGCGCTCG CCGGCCCCCC BCBBTCTCCG BGGCCBGCGC GGTGCCCCCC BGCBGCBBGG CCGGCBGGBC BCBGGCGBGG BGBCBCGCGB GTCGGCGGCC GBGGGTCBTG GTGGGGCTGG GGCTCCGGGG TCTCTGCCCC TCCGTGC-3' (FRAG. NO:1788) (SEQ ID NO:11170)

Human Neutrophil Oxidase Factor Nucleic Acid and Antisense Oligonucleotide Fragments

5'-CGGGBGTGGG GGTCCTGGBC GGCBCTGBBG GCBTCCBGGG CTCCCTTCCB GTCCTTCTTG TCCGCTGCCB GCBCCCCTTC BTTCCBGBGG CTGBTGGCCT CCBCCBGGGB CBTGBTTBGG TBGBBBCTBG GBGGCCGGCC TCCBCCBGGG BCBTGGTCCT TCTTGTCCGC TGCCTCTCTG GGGTTTTCGG TCTGGGTGGG CTTTCCTCCT GGGGCTGCTG CTGGGCTCTT CTTTTTGTTT CTGGCCTGGT GCTCTCTCGT GCCCTTTCCC TTGGGTGTCT TGTTTTTGTG GCCTCCBCCB GGGBCBTG-3' (FRAG. NO:1789) (SEQ ID NO:11171)

5'-CGGGBGTGGG GG-3 '(FRAG.NO:1790) (SEQ ID NO:11172)

5'-GCCBGCBCCCC-3' (FRAG.NO:1791) (SEQ ID NO:11173)

5'-C CBC CBG-3' (FRAG.NO:1792) (SEQ ID NO:11174)

5'-GGC CTC CBC CBG GGB CBT G-3' (FRAG. NO:1201) (SEQ ID NO:10579)

5'-GTC CTT CTT GTC CGC TGC C -3' (FRAG. NO:1202) (SEQ ID NO:10580)

5'-TCT CTG GGG TTT TCG GTC TGG GTG G-3 (FRAG. NO:1203) (SEQ ID NO:10581)

5'-GCT TTC CTC CTG GGG CTG CTG CTG-3' (FRAG. NO:1204) (SEQ ID NO:10582)

5'-GGC TCT TCT TTT TGT TTC TGG CCT GGT G-3' (FRAG. NO:1205) (SEQ ID NO:10583)

5'-CTC TCT CGT GCC CTT TCC-3' (FRAG. NO:1206) (SEQ ID NO:10584)

5'-CTT GGG TGT CTT GTT TTT GT-3' (FRAG. NO:1207) (SEQ ID NO:1216

5'-GGC CTC CBC CBG GGB CBT G-3' (FRAG. NO:1208) (SEQ ID NO:10586)

5'-CGGGBGTGGG GGTCCTGGBC GGCBCTGBBG GCBTCCBGGG CTCCCTTCCB GTCCTTCTTG TCCGCTGCCB GCBCCCCTTC BTTCCBGBGG CTGBTGGCCT CCBCCBGGGB CBTGBTTBGG TBGBBBCTBG GBGGCC-3' (FRAG. NO:1793) (SEQ ID NO:11175)

Human Cathepsin G Nucleic Acid and Antisense Oligonucleotide Fragments

5'-CCCTCCBCBT CTGCTCTGBC CTGCTGGBCT CTGGBTCTGB BGBTBCGCCB TGTBGGGGCG GGBGTGGGGC CTGCTCTCCC GGCCTCCGBT GBTCTCCCCT GCCTCBGCCC CBGTGGGTBG GBGBBBGGCC BGCBGBBGCB GGBGTGGCTG CBTCTTTCCT GGTGGGGCCT GCTCTCCCGG CCTCCGTGTG TTGCTGGGTG TTTTCCCGTC TCTGGTCTGC CTTCGGGGGT CGT-3' (FRAG. NO:1794) (SEQ ID NO:11176)

5'-GBBGBTBCGCC-3' (FRAG. NO:1795) (SEQ ID NO:11177)

5'-CBGCCCCBG-3' (FRAG. NO:1796) (SEQ ID NO:11178)

5'-TCC CGT CTC TGG-3' (FRAG. NO:1797) (SEQ ID NO:11179)

5'-GTG GGG CCT GCT CTC CCG GCC TCC G-3' (FRAG. NO:1209) (SEQ ID NO:10587)

5'-TGT GTT GCT GG GTG TTT TCC CGT CTC TGG-3' (FRAG. NO:1210) (SEQ ID NO:10588)

5'-TCT GCC TTC GGG GGT CGT-3' (FRAG. NO:1211) (SEQ ID NO:10589)

5'-CCCTCCBCBT CTGCTCTGBC CTGCTGGBCT CTGGBTCTGB BGBTBCGCCB TGTBGGGGCG GGBGTGGGGC CTGCTCTCCC GGCCTCCGBT GBTCTCCCCT GCCTCBGCCC CBGTGGGTBG GBGBBBGGCC BGCBGBBGCB GGBGTGGCTG-3' (FRAG. NO:1798) (SEQ ID NO:11180)

Human Defensin 1 Nucleic Acid and Antisense Oligonucleotide Fragments

5'-CCGGGGCTGC BGCBBCCTCB TCBGCTCTTG CCTGGBGTGG CTCBGCCTGG GCCTGCBGGG CCBCCBGGBG BBTGGCBGCB BGGBTGGCGB GGGTCCTCBT GGCTGGGGTC BCBGBTCCTC TBGCTBGGCB GGGTGBCCBG BGBGGGC GGG TCC TCB TGG CTG GGG GCC TGG GCC TGC BGG GCC GCT CTT GCC TGG BGT GGC TC GCC CBG BGT CTT CCC TGG T GCTCAGCCTC CAAAGGAGCC AGCCTCTCCC CAGTTCCTGA AATCCTGAGT GTTGCCTGCC AGTCGCCATG AGAACTTCCT ACCTTCTGCT GTTTACTCTC TGCTTACTTT TGTCTGAGAT GGCCTCAGGT GGTAACTTTC TCACAGGCCT TGGCCACAGA TCTGATCATT ACAATTGCGT CAGCAGTGGA GGGCAATGTC TCTATTCTGC CTGCCCGATC TTTACCAAAA TTCAAGGCAC CTGTTACAGA GGGAAGGCCA AGTGCTGCAA GTGAGCTGGG AGTGACCAGA AGAAATGACG CAGAAGTGAA ATGAACTTTT TATAAGCATT CTTTTAATAA AGGAAAATTG CTTTTGAAGT AT CTGCAGTGGT AAAAAGATTC TATATCTGCT GTTTGATGAA TGCAGCACCC ACTAGCCACA TAGTGCTCGT GAGCACTTGC AATGCGGCTA GGGTGATTTC AATTAACCTA AAAGAGAACA GCCACAGGGA GCATGTGGCT GCCATATTGG ATGGTGCTGC TTTGAGAACA AAATGAGAGA AATGAAGCCT CTATTTACCT TGGTTGGCGG AACACATTGA AGGGACTCTG TATTGATACC AGGCTTCAAA CTTTGGGAAG TGTACTGGCC AACTTAAACA CATCCACAGG AGAATGAAGA GGTTTGGGAA GGGACCAGAA ACCAGGCATT GAGGACAATG AGAAGAGTTT TTCAAAAGTG GAATTACTGC AAAAAGTGGA AAAATAGCCT TTGGATGGAA GTTACTGATG AGACAATTTC CATCGGTGTG AAAGCCATCT TTCCAACAGA GATCTGCAAC ATGAGAATGT ACTGTCTCCT AGGGTAGCGA TGGCCTCTTG TATTAGTCCG CTCAGGCTAC CAGATTTATC GTTTAAACTG CCCATAAACA GACCAGGCAG TTTAAACAAC AGAAATTTAT TTCCTCGCAG TCCTGGAGGC AGGAAGTCTG CGATCAAGGT GGAAGCAGGG TTGGCTTCTT CTCAGGTGTC TGTCCTTGGC TGGTAGATGA CCGCCGCCTC CCTGGGTCCT CACATGGTCT TTCCTCTGTG TGTGTCTGTC CCAATCTCTT CTTATAAGGA TGCAAGTCTT ATGGATCAGA GCACACCCCA ATGACCGTGT TTAACTTGAA TCACCTCTTT AAAGTTTCTC TCTCCAAATA CAATCACCTC CTGAGGCACT GTTAGGGCTT CGACACAGGA ATTCTTTTCC TAGGGGATTC AGTTCAGTCC AAAACGCCTA CCAGTGGAGA CTTGCAACAT GGCGGCCTGC TGGTCCCTCG CCAGGAATAT CACAGGCGAC TGTTCCCTGT TGCATGGAAT AGAAGGCTAT TCCAGAGTAC TGTCTCTATT TATCAGATCT GGGATACTGG GAGAAGGGCA AAATAAAGTC CAAGTAGAAA AAAAAACTAT GAAAGTTTTA GAGAGTAACC ATAATTTCAG CCCGATGTGA AACGATCCTA GATTTCAGCT GAAATAGTGA TGTGGGAAGT GAGGGGGCCG GGATTCAAGG CAGAGGGAAC AGCGTAACTG AAGGCATGGA AGGAGGGAAG TGTAGGCTGT GTTTGAAGAG TGGCAGCTGC TTCCACATTT CTAAAACACA GGATGTGATT TTGGGGTGTG TTGAGACAAG GCAGAAAACT TGTTTGGAAA AATAACTTGA ATTCCCTGCA CATTTAAAAT CTCTCAGCAG AAGAAAACCC CACTCAGAAC CCCACTGTTC ATTCCTTGGC TTGTATTTGG SCACAGCTGG CATAGCCCCA GACTGAGTAA GCTCTTCAGA CACCTCATTT CATGAGTAGC CCCAAAGATC AATCATGGGC CAATTTCTTG GAAGAGAAGA CTCTCCGGTG TTTTGCAGTT ATTTGTTCTG CTTTCGCGAG ATGTTCTCAA ATCGTTGCAG CTACAAGCCA TGAGTCTGAA GTGTTTGTGT TCCCTCCTTA CAGGTGGTAA CTTTCTCACA GGCCTTGGCC ACAGATCTGA TCATTACAAT TGCGTCAGCA GTGGAGGGCA ATGTCTCTAT TCTGCCTGCC CGATCTTTAC CAAAATTCAA GGCACCTGTT ACAGAGGGAA GGCCAAGTGC TGCAAGTGAG CTGAGAGTGA CCAGAAGAAA TGACGCAGAA GTGAAATGAA CTTTTTATAA GCATTCTTTT AATAAAGGAA AATTGCTTTT GAAGTATACC TCCTTTGGGC CAAAATGAAT CTTGTGTCTC AATTGGAAGA GGTAAAGAAG TAGGGGGTTA GGGTGCATGG GTTGGAACGT GAGACAGGTC GAACCACAAA GCCTGCCTGG AAAAGGGGAG TGACGTCCTA GGCTTCAGTG ATGTCACCTC CACTTTGTTT GATCCACAAA CCAACAGGTG ACTGATTTTG GTCAGCTCAG CCTCCAAAGG AGCCAGCCTC TCCCCAGTTC CTGAAATCCT GAGTGTTGCC TGCCAGTCGC CATGAGAACT TCCTACCTTC TGCTGTTTAC TCTCTGCTTA CTTTTGTCTG AGATGGCCTC AGGTGGTAAC TTTCTCACAG GCCTTGGCCA CAGATCTGAT CATTACAATT GCGTCAGCAG TGGAGGGCAA TGTCTCTATT CTGCCTGCCC GATCTTTACC AAAATTCAAG GCACCTGTTA CAGAGGGAAG GCCAAGTGCT GCAAGTGAGC TGGGAGTGAC CAGAAGAAAT GACGCAGAAG TGAAATGAAC TT -3' (FRAG.NO:1799) (SEQ ID NO:12379)

5'-GTCAGCTCAG CCTCCAAAGG AGCCAGCCTC TCCCCAGTTC CTGAAATCCT GAGTGTTGCC TGCCAGTCGC CATGAGAACT TCCTACCTTC TGCTGTTTAC TCTCTGCTTA CTTTTGTCTG AGATGGCCTC AGGTGGTAAC TTTCTCACAG GCCTTGGCCA CAGATCTGAT CATTACAATT GCGTCAGCAG TGGAGGGCAA TGTCTCTATT CTGCCTGCCC GATCTTTACC AAAATTCAAG GCACCTGTTA CAGAGGGAAG GCCAAGTGCT GCAAGTGAGC TGGGAGTGAC CAGAAGAAAT GACGCAGAAG TGAAATGAAC TT-3' (FRAG.NO:___) (SEQ ID NO:11844)

5'-CTGCAGTGGT AAAAAGATTC TATATCTGCT GTTTGATGAA TGCAGCACCC ACTAGCCACA TAGTGCTCGT GAGCACTTGC AATGCGGCTA GGGTGATTTC AATTAACCTA AAAGAGAACA GCCACAGGGA GCATGTGGCT GCCATATTGG ATGGTGCTGC TTTGAGAACA AAATGAGAGA AATGAAGCCT CTATTTACCT TGGTTGGCGG AACACATTGA AGGGACTCTG TATTGATACC AGGCTTCAAA CTTTGGGAAG TGTACTGGCC AACTTAAACA CATCCACAGG AGAATGAAGA GGTTTGGGAA GGGACCAGAA ACCAGGCATT GAGGACAATG AGAAGAGTTT TTCAAAAGTG GAATTACTGC AAAAAGTGGA AAAATAGCCT TTGGATGGAA GTTACTGATG AGACAATTTC CATCGGTGTG AAAGCCATCT TTCCAACAGA GATCTGCAAC ATGAGAATGT ACTGTCTCCT AGGGTAGCGA TGGCCTCTTG TATTAGTCCG CTCAGGCTAC CAGATTTATC GTTTAAACTG CCCATAAACA GACCAGGCAG TTTAAACAAC AGAAATTTAT TTCCTCGCAG TCCTGGAGGC AGGAAGTCTG CGATCAAGGT GGAAGCAGGG TTGGCTTCTT CTCAGGTGTC TGTCCTTGGC TGGTAGATGA CCGCCGCCTC CCTGGGTCCT CACATGGTCT TTCCTCTGTG TGTGTCTGTC CCAATCTCTT CTTATAAGGA TGCAAGTCTT ATGGATCAGA GCACACCCCA ATGACCGTGT TTAACTTGAA TCACCTCTTT AAAGTTTCTC TCTCCAAATA CAATCACCTC CTGAGGCACT GTTAGGGCTT CGACACAGGA ATTCTTTTCC TAGGGGATTC AGTTCAGTCC AAAACGCCTA CCAGTGGAGA CTTGCAACAT GGCGGCCTGC TGGTCCCTCG CCAGGAATAT CACAGGCGAC TGTTCCCTGT TGCATGGAAT AGAAGGCTAT TCCAGAGTAC TGTCTCTATT TATCAGATCT GGGATACTGG GAGAAGGGCA AAATAAAGTC CAAGTAGAAA AAAAAACTAT GAAAGTTTTA GAGAGTAACC ATAATTTCAG CCCGATGTGA AACGATCCTA GATTTCAGCT GAAATAGTGA TGTGGGAAGT GAGGGGGCCG GGATTCAAGG CAGAGGGAAC AGCGTAACTG AAGGCATGGA AGGAGGGAAG TGTAGGCTGT GTTTGAAGAG TGGCAGCTGC TTCCACATTT CTAAAACACA GGATGTGATT TTGGGGTGTG TTGAGACAAG GCAGAAAACT TGTTTGGAAA AATAACTTGA ATTCCCTGCA CATTTAAAAT CTCTCAGCAG AAGAAAACCC CACTCAGAAC CCCACTGTTC ATTCCTTGGC TTGTATTTGG SCACAGCTGG CATAGCCCCA GACTGAGTAA GCTCTTCAGA CACCTCATTT CATGAGTAGC CCCAAAGATC AATCATGGGC CAATTTCTTG GAAGAGAAGA CTCTCCGGTG TTTTGCAGTT ATTTGTTCTG CTTTCGCGAG ATGTTCTCAA ATCGTTGCAG CTACAAGCCA TGAGTCTGAA GTGTTTGTGT TCCCTCCTTA CAGGTGGTAA CTTTCTCACA GGCCTTGGCC ACAGATCTGA TCATTACAAT TGCGTCAGCA GTGGAGGGCA ATGTCTCTAT TCTGCCTGCC CGATCTTTAC CAAAATTCAA GGCACCTGTT ACAGAGGGAA GGCCAAGTGC TGCAAGTGAG CTGAGAGTGA CCAGAAGAAA TGACGCAGAA GTGAAATGAA CTTTTTATAA GCATTCTTTT AATAAAGGAA AATTGCTTTT GAAGTATACC TCCTTTGGGC CAAAATGAAT CTTGTGTCTC AATTGGAAGA GGTAAAGAAG TAGGGGGTTA GGGTGCATGG GTTGGAACGT GAGACAGGTC GAACCACAAA GCCTGCCTGG AAAAGGGGAG TGACGTCCTA GGCTTCAGTG ATGTCACCTC CACTTTGTTT GATCCACAAA CCAACAGGTG ACTGATTTTG-3' (FRAG.NO:___) (SEQ ID NO:11843)

5'-GCTCAGCCTC CAAAGGAGCC AGCCTCTCCC CAGTTCCTGA AATCCTGAGT GTTGCCTGCC AGTCGCCATG AGAACTTCCT ACCTTCTGCT GTTTACTCTC TGCTTACTTT TGTCTGAGAT GGCCTCAGGT GGTAACTTTC TCACAGGCCT TGGCCACAGA TCTGATCATT ACAATTGCGT CAGCAGTGGA GGGCAATGTC TCTATTCTGC CTGCCCGATC TTTACCAAAA TTCAAGGCAC CTGTTACAGA GGGAAGGCCA AGTGCTGCAA GTGAGCTGGG AGTGACCAGA AGAAATGACG CAGAAGTGAA ATGAACTTTT TATAAGCATT CTTTTAATAA AGGAAAATTG CTTTTGAAGT AT-3' (FRAG.NO:___) (SEQ ID NO:11841)

5'-CCGGGGC-3' (FRAG.NO:1800) (SEQ ID NO:11182)

5'-GG GCCTGCBGGG CC-3' (FRAG.NO:1801) (SEQ ID NO:11183)
5'-GGCBGCB BGG-3' (FRAG.NO:1802) (SEQ ID NO:11184)
5'-GGG TCC TCB TGG CTG GGG-3' (FRAG. NO:1212) (SEQ ID NO:10590)
5'-GCC TGG GCC TGC BGG GCC-3' (FRAG. NO:1213) (SEQ ID NO:10591)
5'-GCT CTT GCC TGG BGT GGC TC-3' (FRAG. NO:1214) (SEQ ID NO:10592)
5'-GCC CBG BGT CTT CCC TGG T-3' (FRAG. NO:1215) (SEQ ID NO:10593)
5'-CCGGGGCTGC BGCBBCCTCB TCBGCTCTTG CCTGGBGTGG CTCBGCCTGG GCCTGCBGGG CCBCCBGGBG BBTGGCBGCB BGGBTGGCGB GGGTCCTCBT GGCTGGGGTC BCBGBTCCTC TBGCTBGGCB GGGTGBCCBG BGBGGGC-3' (FRAG.NO:1803) (SEQ ID NO:11185)

<u>Human Defensin 2 Nucelic Acid and Antiseuse Oligonucleotide Fragments</u>

5'-ATCCTTTAAG TCAATGGACT TTGCATCAGT CACACCATCT TTTGTTACTT TGGACTTCCC CAGCTATGTT CAATAATTAC TGTTCTTCCC TTGGGCCCCA TTGTAATGGC TACAGCCTCG ACAAAAAGTC TACACTTTGA AGCATTAAGG CTCGGACATC AGCACCAAAT TTTACATCTT TACCATCACT TCAAGTGAGG TGAGGAGCCA GTAGCCTGGA CACTGGTCTC ATCTGGTGAA AGACTGTGGG TAATGGAAGC ATTTCTGTGG GGTGCTGGCA GGACATGTGC ATGGCGAGGC AGGTCATCAG CAGCAAGTGA GAGCTGCCTC TTACTTTCTA AAGGTGACAT AGCAAATATA CAAAAAAAAA TAAATAAATT ATTAATTTAG GTAGAGCACA TAAAGGCTTT ATTTCATATT CCATTTCTCT GTATGCTTTC TTCACCAGGA AGAAATAGTT TTAGTGTCAG GAATGAATGA GTCTGCCCCT CAATTCCAGC CTGCTCAACA CACAAGGAAA CAAAGCCCTG ACAATCAGAG TGACTCCCTG GTGACTAAGC TCCCAGTCCT GGATGCATAT TTGTTTAGCA GTTCTGACAG CATTTGACCC AGCCCTCTCT CTGCATATCC CATCAGAACC TTCTTTTTTT TTTTTTTCTT TGAGACTGAG TCTTGCTCTG TCGGAAGCGA CTCCTGTGCC TCAGCCTCCC AAATACCTGG AATTATAGGC GTAAGCCATC ATGCCTGGCT AATTTTTGTA TTTTTCATGG AGATGGGGTT TTGCCATGTT GGTCAAATTG GTCTCACACT CCTGACCTCA TGTGATCCAC CTGCCTCAGC CTCCCAAACT GCTGGGATGA CAGGTGTAAG CCACCATGCT AGGCTCAGAA ATTTCCTTTT ATAAAAATGT CATTAAGGAT CTTGGCTGCA CAATATCGTT ACCAGCTTCC TTTAAATCCA CTTCTGGCCT GCCAGGAATC AGGTTCTTCA GAACCTGACA TTTTAAATGA AGAGGTCAGG CAGTTCATGA GGAAAGCCTC ATTGTCCCCA TGTCTCTGTC ACTGCTGCAC CCCTGAGACA TCACAGACAT GGACACTGGG GCCTGCTTGT TTCTCAAACT GCCCTTAGAT CGAAAGAGGG AGGAACCAGG ATGAATGCCA CTCATTTTCC CAAGAAAGGC CCTCTCCTGA GTGCCCGGGA TGGGGCTCTG TCCATTGCCT GGGGCCGCCA ATTGCTACTC TGGGTTACGG AGGAAGGACA GGGTCCTGAG AGACACCAGA GACCTCACAC AGCCCTGAAA ACATGGGGCT CCTTCATAAG TGTTTCCCAT CACCAACAGG GAGACCACGT GGAGGCCTTG CAGCCCCACT CGGTGCTTCT CCACCAAATC CCAAGGGCAG TGACGCTGAC GTCTGTGGAA AGCAGAGAAA GCCCTGGCTC CCAAAGCCCT GAAGTCCCTG TGGAGCTGAC ATTCCCTGAG TGACGGTGTG AATGGAAGGA ACTCAAGTGC GGGTGGTAGG CCACCTCCTG GCCCAGGCCT GGGTGAACTC TGAGGGGACA CATGTAGTCA CAATCCCATC CTCCCATTCT CCTTCTCAGA GGAAGGAAGT GGGCATCCAT CTGCCTCATC TCTCTCCCGT GGGGAAGATG GGGAGTTTCA GGGGAACTTT CACATAAATT TCACCAGCTC AGATCTCCTG TGAGGATGGG GCCCACCATG CTCCCGGTGC TGCCAGAGGC CCTGAGCCCC TCCCAGGGTC CCTGGGTTTG AGCCAGCCCT GTATCATCCC CAGGAGCTGA ATGTCAGAGC AATGGATAGA ATTAGATGGA AAGAGCTCTC AATTTGACCT GAGACTGTCC CCAGATACTC AGGAAAAACA GGACGTCGCA CAGAGTGGGC AGCAGGTGAG TGGCAGGTTA TAGGTCCTGA GTTTGAGTTT GTTCTCACGT GAGACAGACC CAGCCCCTCA CTCCATTCAC ACACTGGGTT TTAAATGGTG CAAGATAGGA GCAATTTTCT GGTCCCAAGA GCAGGAGGAA GGGATTTTCT GGGGTTTCCT GAGTCCAGAT TTGCATAAGA TCTCCTGAGT GTGCATTGTT CTTTGAGGAC CATTCTCTGA CTCACCAGGT AAGTGGCTGA ATTCTAACCT CTGTAATGAG CATTGCACCC AATACCAGTT CTGAACTCTA CCTGGTGACC AGGGACCAGG ACCTTTATAA GGTGGAAGGC TTGATGTCCT CCCCAGACTC AGCTCCTGGT GAAGCTCCCA GCCATCAGCC ATGAGGGTCT TGTATCTCCT CTTCTCGTTC CTCTTCATAT TCCTGATGCC TCTTCCAGGT GAGATGGGCC AGGGAAATAG GAGGGTTGGC CAAATGGAAG AATGGCGTAG AAGTTCTCTG TCTCCTCTCA TTCCCCTCCA CCTATCTCTC CCTCATCCCT CTCTCTCCTT CCTCTCTCTG TGTGTCCCCT CCATCCTTTT CTCCTGCTTC TCTCTCTTCT TCCCTCTCTC TCTTTTTTCT GTCTTTCTTT TTCCTCTCTC CCTAGAGCAT GTCTTTCTTT CTTTCTCTTT CCTTTCTTCT ACCCACACTT TTAGACTGAA TGCCCTATTT AATTGAACAA AGCATTGCTT CCTTCAATAG AAAAGGAGTT TGAGAACCCA ATGGACACCT CACTCGTTCT TCTAAGCCAA TATGAAGGAG CCCAGTAGCT TGTAAATATC ATCTCTTCAC TGCTTTCCAT GCTACAACTG CTGAGACTAT GGTTGAAACC TGTTAGGTGA CTTTTTAAAT AAAAGGCAGA AATTTTGATT TTATCTAAAG AAAGTAGTAT AGAATGTCAT TTTCTAAATT TTTATATTTA AAGGGTAGAT ACTGCAACCT AGAGAATTCC AGATAATCTT AAGGCCCAGC CTATACTGTG AGAACTACTG CAGCAAGACA CTCTGCCTCC AGGACTTTTC TGATCAGAGG CCCTGAGAAC AGTCCCTGCC ACTAGGCCAC TGCAGGTTCA CAGGACAGGG TACAGCCCAT TGAAACCTAC TTTTAAACCT GGATGCCTAA CCTTCATTTT CTCCTTGATA TTATGAAAAT AAAATAAAAA CCATGAAAGG ATAAAAGAGG GAGAGTGGAA GGGAAGGATG GAGAAAGGGA AAAAGAAAAT TTGAGAGTAA ATCCTAAAAC AATTAATCTA ATAGATATCA TCTTGTGAAA TCCTCATTTT ACCAATCTTA TTTATGAGTC CTGGGTTTTG TGAGAACAAT GGGGTTCTGA GAGGCACCAG AGACCTCATG TTTTCCAAAA CCTAGAACAG TATAATGAAG GAAGGCGGGG AGGCAGGGAG GCAGGGAGGC AGGGAGGCAG GGAGGCGGGC AGGTGGGGAG GGAGGGACGG AAGGAGGGAG GGAGGGAGGG AGGGAGGGAG GGAGGGATAA AAAAAGAAGA ATGAGGTTGA AACCAGGACT TAGATATTAG AAACAAGCCA TTACAAAATT TATTTCTATG GTTAATTGTG GTTTTCAACT GTAAGTTACT TGGTGTTAAT TTCCTATTAA ACAATTTCAG TAAGTTGCAT CTTTTTATCC CATCTCAGGT CAAATACTTA ACAGACTAAA TGATTTGAAA AAGCAAAAGT TTACTGGCTT GTGTGTGTTA AAATGGAGGT ATGGTGGCTT TGATATTATC TTCTTGTGGT GGAGCTGAAT TCACAAGAGA TCGTTGCTGA GCTCCTACCA GACCCCACCT GGAGGCCCCA GTCACTCAGG AGAGATCAGG GTCTTTCACA ATCAGGTTCT ACAAAAATAA ACATCCCCCC AACCACAGCA GTGCCAGTTT CCATGTCAGA AACTTAGATC CAAATGACTG ACTCGCGTCT CATTATCATG ATGGAAAAGC CCAGGCTTGA GAAAGAAGCC CGCTGCGGAT TTACTCAAGG CGATACTGAC ACAGGGTTTG TGTTTTTCCA ACATGAGTTT TGAGTTCTTA CACGCTGTTT GCTCTTTTTG TGTGTTTTTT CCCTGTTAGG TGTTTTTGGT GGTATAGGCG ATCCTGTTAC CTGCCTTAAG AGTGGAGCCA TATGTCATCC AGTCTTTTGC CCTAGAAGGT ATAAACAAAT TGGCACCTGT GGTCTCCCTG GAACAAAATG CTGCAAAAAG CCATGAGGAG GCCAAGAAGC TGCTGTGGCT GATGCGGATT CAGAAAGGGC TCCCTCATCA GAGACGTGCG ACATGTAAAC CAAATTAAAC TATGGTGTCC AAAGATACGC AATCTTTATC CTAGTAATTG TGGTCATTGG GTGATGTTGG TTTGGGCAGG CCATCTCTAA TATCCTTGAA ACACCTTTTT CTGCTCTCCA GGAAGGGGTC AGGGCTGCCA CAGCGGGGCT TGGAGTGCTT TCCAGGGTCA CAGGCATCTG TATTCTTTGG ATTCCTTGAC CTTCCCCATT TATTCCCGGC ATTTTCCTAA AACGTGTGCT TTGCTCCTCC TGCATCCTCC CCTTGCATGC CCTCACCTAC CCCACATCTT CCCTAAAAAA AGCAAGCCCA ACTCAAAGAC CAGTTCCCTC ATGGAATCAT AGTGGATCTG CCAAGGGAGG GGATGCCCAG TCCTCTGTTC TTCACAAGAC TCCCTTCTTC TGGCTAAGGT TTCTTATGCA ATTAT GAATTCACAT TTCTCACCTT TTGATGTATT AAGAAAGTAT GGAGAAATAT ATCCTCTATC AAATTTTCAT GCCTTCAATA ATTTCTAATT CATCAGTCAG TGTTTTTCCA TCCTTTACTG TGATGATGCC CTTTCTTCCA AACTTTTTCA TTGCATCAGA GATGATGTTA CCAATTTCTT TGTCTCCATT TGCAGAAATT GTAGCAACCT GTGCAATTTC TTCAGGTTTG GTCACAGGTT TAGACTGCTT TTTAAGTTCA GCAATTACAG CATCAACAGC TAACATCACA CCTCTCTTGA TTTCCACTGG ATTAGCACCT TTGCTAACCT TCTGGAAGGC TTATTTGGAA ATAGAGCATA CCAGTACAGC AGCAGTGATA GTGCCATCCC CCAGTCTCTC CATTTGTGTT ATTGGCAACA TCTTGGACAA GTTTAGCTCC AATGCTTTTA TATTTATCCT TTAAGTCAAT TGACTTTGCA TCAGTCACAC CATCTTTTGT TACTTTGGGA CTTCCCCAGC TATGTTCAAT AATTACTGTT CTTCCCTTTG

GCCCCATTGT AATGGCTACA GCATCGACAA AAAGTCTACA CTTTGAAGCA TTAAGGCTCA GACATCAGCA CCAAATTTTA
CATCTTTACC ATCACTTCAA GTGAGGTGAG GAGCCAGTAG CCTGGACACT GGTCTCATCT GGTGAAAGAC TGTGGGTAAT
GGAAGCATTT CTGTGGGGTG GTGGCAGGAC ATGTGCATGG TGAGGCAGGT CATCAGCAGC AAGTGAGAGC TGCCTCTTAC
TTTCTAAAGG TGACATAGCA AGTATACAAA AAAAAATAAA ATATTAATTT AGGCAGAGCA CATAAAGGCT TTATTTCATA
TTCCATTTCT CTGTATGCTT TCTTCACCAG GAAGAAATAG TTTTAGTGTC AGGAATGAAT GAGTCTGCCC CTCAATTCCA
GCCTGCTCAG CACACAAGGA AACAAAGCCC TGACAATCAG AGTGACTCCC TGGTGACTAA GCTCCAGTCC TGGATGCATA
TTTGTTTAGC AGTTCTGACA GCATCTGACC CAGCCCTCTC TTTGCATACC CCACCAGAAC CTTCTTTTTT TTTTTTTTTC
TTTGAGACTG AGTCTTGCTC TGTCGGAAGC GATTCCCGTG CCTCAGCCTC CCAAATACCT GGAATTATAG GCGTAAGCCA
TCATGCCTGG CTAATTTTTG TATTTTTCAT GGAGATGGGG TTTTGCCATG TTGGTCAAAT TGGTCTCACA CTCCTGACCT
CATGTGATCC ACCTGCCTCA GCCTCCCAAA GTGCTGGGAT GACAGGTGTA AGCCACCATG CTAGGCTCAG AAATTTCCTT
TTATAAAAAT GTCATTAAGG ATCTTGGCTG CACAATATCG TTACCAGCTT CCTTTAAATC CACCTCTGGC CTGCCAGGAA
TCAGGGTTCT TCAGAACCTG ACATTTTAAA TGAAGAGGTC AGGCAGGTCA TGAGGAAAGC CTCATTGTCC CCATGTCTCT
GTCACTGCTG CACCCCTGAG ACATCACAGA CATGGACACT GGGGCCTGCT TGTTTCTCAA ACTGCCCTTA GATCGAAAGA
GGGAGGAACC AGGATGAATG CCACTCATTT TCCCAAGAAA GGCCCTCTCC TGAGTGCCCG GGATGGGGCT CTGTCCATTG
CCTGGGGCCG CCAATTGCTA CTCTGGGTTA CGGAAGAAGG ACAGGGTCCT GAGAGACACC AGAGACCTCA CACAGCCCTG
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TCTCCACCAA ATCCCAAGGG CAGTGACGCT GACGTCTGTG GAAAGCAGAG AAAGCCCTGG CTCCCAAAGC CCTGAAGTCC
TGTGGAGCTG ACATTCCCTG AGTGACGGTG TGAATGGAAG GAACTCAAGT GCGGGTGGTA GGCCACCTCC TGGCCCAGGC
CTGGGTGAAC TCTGAGGGGA CACATGTAGT CACAATCCCA TCCTCCCATT CTCCTTCTCA GAGGAAGGAA GTGGGCATCC
ATCTGCCTCA TCTCTCTCCC GTGGGGAAGA TGGGGAGTTT CAGGGGAACT TTCACATAAA TTTCACCAGC TCAGATCTCC
TGTGAGGATG GGGCCCACCA TGCTCCCGGT GCTGCCAGAG GCCCTGAGCC CCTCCAGGGT CCCTGGGTTT GAGCCAGCCC
TGTATCATCC CCAGGAGCTG AATGTCCGAA CAATGGATAG AATTAGATGG AAAGAGCTCT CAATTTGGCC TGAGACTGTC
CCCAGATACT CAGGAAAAAC AGGACGTCGC ACAGAGTGGG CAGCAGGTGA GTGGCAGGTT ATAGGTCCTG AGTTTGAGTT
TGTTCTCACG TGAGACAGAC CCAGCCCCTC ACTCCATTCA CACACTGGGT TTTAAATGGT GCAAGATAGG AGGAATTTTC
TGGTCCCAAG AGCAGGAGGA AGGGATTTTC TGGGGTTTCC TGAGTCCAGA TTTGCATAAG ATCTCCTGAG TGTGCATTGT
TCTTTGAGGA CCATTCTCTG ACTCACCAGG TAAGTGGCTG AATTCTAACC TCTGTAATGA GCATTGCACC CAATACCAGT
TCTGAACTCT ACCTGGTGAC CAGGGACCAG GACCTTTATA AGGTGGAAGG CTTGATGTCC TCCCCAGACT CAGCTCCTGG
TGAAGCTCCC AGCCATCAGC CATGAGGGTC TTGTATCTCC TCTTCTCGTT CCTCTTCATA TTCCTGATGC CTCTTCCAGG
TGAGATGGGC CAGGGAAATA GGAGGGTTGG CCAAATGGAA GAATGGCGTA GAAGTTCTCT GTCTCCTCTC ATTCCCCTCC
ACCTATCTCT CCCTCATCCC TCTCTCTCCT TCCTCTCTCT GTGTGTCCCC TCCATCCTTT TCTCCTGCTT CTCTCTCTTC
TTCCCTCTCT CTCTTTTTTT CTGTCTTTCT TTTTCCTCTC TCCCTAGAGC ATGTCTTTCT TTCTTTCTCT TTCCTTTCTT
CTACCCACAC TTTTAGACTG AGTAGACTGA ATGCCCTATT TAATTGAACC AAGCATTGCT TCCTTCAATA GAAAAGGAGT
TTGAGAACCC AATGGACAAC TCACTCGTTC TTCTAAGCCA ATATGAAGGA GCCCAGTAGT TTGTAAATAT CATCTCTTCA
CTGCTTTCCA TGCTACAACT GCTGAGACTA TGGTTGAAAC CTGTTAGGTG ACTTTTTAAA TAAAAGGCAG AAATTTTGAT
TTTATCTAAA GAAAGTAGTA TAGAATGTCA TTTTCTAAAT TTTTATATTT AAAGAGTAGA TACTGCAACC TAGAGAATTC
CAGATAATCT TAAGGCCCAG CCTATACTGT GAGAACTACT GCAGCAGACA CTCTGCCCCC AGGACTTTTC TGATCAGAGG
CCCTGAGAAC AGTCCCTGCC ACTAGGCCAC TGCAGGTTCA CAGGACAGGG ACAGCCCATT GAAACCAACT TTTAAACCTG
GATGCCTAAC CTTCATTTTC TCCTTGATAT TATGAAAATA AAATAAAAAC CATGAAAGGA TAAAAGAGGG AGAGTGGAAG
GGAAGGATGG AGAAAGGGAA AAAGAAAATT TGAGAGTAAA TCCTAAAACA ATTAATCTAA TAGATATCAT CTTGTGAAAT
CCTCATTTTA CCAATCTTAT TTATGAGTCC TGGGTTTTGT GAGAACAATG GGGTTCTGAG AGGCACCAGA GACCTCATAT
TTTCCAAAAC CTAGAACAGT ATAATGAAGG AAGGAGGGAA GGAGGGAGGG AGGGAGGGAA GGAGGGAAGG AGGGAGGGAG
GGAGGGAAAC AAAAAGAAGA ATGAGGTTGA AACCAGGACT TAGATATTAG AAACAAGCCA TTACAAAATT TATTTCTATG
GTTAATTGTG GTTTTCAACT GTAAGTTACT TGGTGTTAAT TTCCTATTAA ACAATTTCAG TAAGTTGCAT CTTTTTTATC
CCATCTCAGA TCAAATACTT AACAGACTAA ATGATTTGAA AAAGCAAAAG TTTACTGGCT TGTGTGTGTT AAAATGGAGG
TATGGTGGCT TTGATATTAT CTTCTTGTGG TGGAGCTGAA TTCACAAGAG ATCGTTGCTG AGCTCCTGCC AGACCCCACC
TGGAGGCCCC AGTCACTCAG GAGAGATCAG GGTCTTTCAC AATCAGGTTC TACAAAAATA AACATCCCCC AAACCACAGC
AGTGCCAGTT TCCATGTCAG AAACTTAGAT CCAAATGACT GACTCGCGTC TCATTATCAT GATGGAAAAG CCCAGGCTTG
AGAAAGAAGC CCGCTGCGGA TTTACTCAAG GCGATACTGA CACAGGGTTT GTGTTTTTCC AACATGAGTT TTGAGTTCTT
ACACGCTGTT TGCTCTTTTT GTGTGTTTTT TCCCTGTTAG GTGTTTTTGG TGGTATAGGC GATCCTGTTA CCTGCCTTAA
GAGTGGAGCC ATATGTCATC CAGTCTTTTG CCCTAGAAGG TATAAACAAA TTGGCACCTG TGGTCTCCCT GGAACAAAAT
GCTGCAAAAA GCCATGAGGA GGCCAAGAAG CTGCTGTGGC TGATGCGGAT TCAGAAAGGG CTCCCTCATC AGAGACGTGC
GACATGTAAA CCAAATTAAA CTATGGTGTC CAAAGATACG CAATCTTTAT CCTAGTAATT GTGGTCATTG GGTGATGTTG
GTTTGGGCAG GCCATCTCTA ATATCCTTGA AACACCTTTT TCTGCTCTCC AGGAAGGGGT CAGGGCTGCC ACAGCGGGGC
TTGGAGTGC-3' (FRAG. NO:___) (SEQ ID NO:12380)
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(FRAG. NO:___) (SEQ ID NO:11845)

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<u>**Human Defensin 3 Nucleic Acid and Antisense Oligonucleotide Fragments**</u>

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CAGGCTGAGC CACTCCAGGC AAGAGCTGAT GAGGTTGCTG CAGCCCCGGA GCAGATTGCA GCGGACATCC CAGAAGTGGT TGTTTCCCTT GCATGGGACG AAAGCTTGGC TCCAAAGCAT CCAGGCTCAA GGAAAAACAT GGACTGCTAT TGCAGAATAC CAGCGTGCAT TGCAGGAGAA CGTCGCTATG GAACCTGCAT CTACCAGGGA AGACTCTGGG CATTCTGCTG CTGAGCTTGC AGAAAAAGAA AAATGAGCTC AAAATTTGCT TTGAGAGCTA CAGGGAATTG CTATTACTCC TGTACCTTCT GCTCAATTTC CTTT-3' (FRAG. NO:1804) (SEQ ID NO:12382)

5'-CCTACCTTGC TATAGAAGAC CTGGGACAGA GGACTGCTGT CTGCCCTCTC TGGTCACCCT GCCTAGCTAG AGGATCTGTG ACCCCAGCCA TGAGGACCCT CGCCATCCTT GCTGCCATTC TCCTGGTGGC CCTGCAGGCC CAGGCTGAGC CACTCCAGGC AAGAGCTGAT GAGGTTGCTG CAGCCCCGGA GCAGATTGCA GCGGACATCC CAGAAGTGGT TGTTTCCCTT GCATGGGACG AAAGCTTGGC TCCAAAGCAT CCAGGCTCAA GGAAAAACAT GGACTGCTAT TGCAGAATAC CAGCGTGCAT TGCAGGAGAA CGTCGCTATG GAACCTGCAT CTACCAGGGA AGACTCTGGG CATTCTGCTG CTGAGCTTGC AGAAAAAGAA AAATGAGCTC AAAATTTGCT TTGAGAGCTA CAGGGAATTG CTATTACTCC TGTACCTTCT GCTCAATTTC CTTT-3' (FRAG. NO:___) (SEQ ID NO:11847)

5'-GAATTCCCTG TAAGCCCTGT TACAGGGGCT GCACCCCAGA TACAACCTGA CCTGTGTCCA AGGCGGGCAA CTCAACCCTT AGATATTGAA TGGGTCCCAT GGCACCAATG CTTAAACACC AGCAGCCCTC ACAACCACAG ATCGTGTTTT AAGGATGAGG AGGTAGTTCT CTGGATGCAC AGGCTTCAAT CCAAATGGGC TCATGACGCC GCAGCACACA CCCAGTCTGC AGCCTGAAGA GTTGGAGCAT TGCATTCACA GAAAGCATCC AGACATGATC ATGGGCTCAG GGATACACCT GTTCTCCGAT GTGTACCAGT GAAGGATGGA AACTCCTATG CCTCCCAGAA AGCACCACTC AAGCTTTTGC TGAATGCTTC TCTGAAGGCC CACAAGGCTG AGAGGCTGTG CAACACCAGC AGTAAAGTGA ATGCCCAGAC TCCCACCTCC TTTCTTGGGT GGCCATCTGG AAAGGCCACT CCCACCCTGA TGGCTAATGC CTCAGACCAG TTCTTGGCCC AGATGATCCT AGACAATTGT TTAAGCTTAA ACTGTTCATT GGCCAAGCAA ACAGGTGATA GTACCTCTGG GGAACCACAT GCCGCGTGTA CATCCAGATC TCAGGAGAAC CCAAAAATGT CTGTTCCACA TAGCAACAGA AGCCCAGGTA GCACTCAGTC TCACCTGGGT GTTCTCCAAC ATCCCAGCTC AGCCAAATGG CTTTCATTAG TTTTTATGGT TAGACCCCAG GTCCTCGGGA CACTGCTTTA GAAACACATT CCAAATCCTC CTCTGTGTGC AGGTGGCATT CCTATCCCAA TCTCTTTGCA GGGCGTATAC TGTGATACGC AGCCAGGCTG TCCCAGAGGC CTTAAATATT CCCTTGGTGC AGGTAGTTCA GCTTAGCCAC AGCCAATGCA TCACAGGGTC AACTGTGTTA GGAGCCATTG AGAATCCATA GTTGGTTGCT GCCTGGGCCT GGCCAGGGCT GACCAAGGTA GATGAGAGGT TCCTCTGTGG AGTTCTACTT TAACCTCACC TTCCCACCAA ATTTCTCAAC TGTCCTTGCC ACCACAATTA TTTAATGGAC CCAACAGAAA GTAACCCCGG AAATTAGGAC ACCTCATCCC AAAAGACCTT TAAATAGGGG AAGTCCACTT GTGCACGGCT GCTCCTTGCT ATAGAAGACC TGGGACAGAG GACTGCTGTC TGCCCTCTCT GGTCACCCTG CCTAGCTAGA GGATCTGTAA GTACTACAAA ACTTAAACTT TACACTGAGT TTTCATCATT GAAGCTATGC CTCCAATCTG ACCTCTGACT GTGGGGCCGC CCCAGAGGGA CCCAGCGGGT GAATCCCTGC TAGGAACGTC TGTCCGGACC TCTGGTGACT GCTGGGGACG ATGGCTTCCA GCTAACTTAA TAGAGAAACT CAAGCAGTTT CCTTCTAAAT ACACATGTCA CATGTCCTGG TTGACATGTC CAGTAAGAAG ACTATCACAG GTCTTTGGAA CATTCTTTTG AGAGAAACCT ATTTAGGTCC TTGGTCTGTT TTTCAATCAG GTTGTTTGAT TTTTGCTATT GAGTTGTTGG AATTCCTTAT GTATTCAGAT ATTTGCCCCT TCTGCCATGT AGGTTTTGCA AATATTTTCT CTCATTTTCT GGGTTATCTT TTCACTCGGT TGATTGTTTC CTTTGCTGTG CAGATGCTTT AGCGTTAAAT GAAGCCACAC TTGTCTATTT TCCCTTTTAT TGCCTGTGCC TTTGGTGTCA TAGCCAAGAA ATCATTACCT ACATCAATGT CAAAAGCTTT ATCCTTCTAT ACACTTCTAG TAGTTTATGG TTTCAGTTGT TACATTTAGG TTTTCAATTC ATTCTGAGTT GATGTTCCTA CATGGTGTGA GATAAAGATT TAAATACATA CATATATAAA ATCATGAGGT AGTGTACACT ATAAATATAC AATTGTTAAT TGTTACTCAA GTCTAAGTAG AGGTGGAAAT AATAAACTTT CTTTTTTTTA CTTAAACCAC TCTGTGTCAC TGAGCTGATT TCACCTTTAG CCTGATAAAA TCATTGTCCT CTCCACCCTG ATTCCTACAG GAGACTACTC ACCCCATAAC CTCAAAAACC TCTTCATGAG GATGGTAAGT CACCTGAATC CTGAAGTGAA TTACTCGCTA TTCCATTGGA ACTCATATAG GACACCAGAA TCTAGACCTC CAGAGAACAG CAGGACCCAT CTTCAGAAAA TAAGAAGCAT TTGTTCCCTG AGCCTGTTGA ATCAAAGTGC AATTTCTATT CTTTTTGGAA TGTTAAAAAG TGAATCATAA TATTTAAGCA GGTGAACCCA CGAGTAACAT AGCAGGGTCT TTCTTGTCAT TATTAGCTCC AACCTAGCAC AGACATTAAA GGTACAGATG TATACTAGCA TGAAACTGGG AGAACAGGAG CATTCGAGCA ACCTTGAGAC CAATGGGCCT CTCTTATAAA ATGCACACCT CCTCTCACTG AGATTGAGGA AGGTTTCTTG TCTCCGAGCC TTCTCCCAGT AGAGCTATAA ATCCAGGCTG GCTCCTCCCT CCCCACACAG CTGCTCCTGC TCTCCCTCCT CCAGGTGACC CCAGCCATGA GGACCCTCGC CATCCTTGCT GCCATTCTCC TGGTGGCCCT GCAGGCCCAG GCTGAGCCAC TCCAGGCAAG AGCTGATGAG GTTGCTGCAG CCCCGGAGCA GATTGCAGCG GACATCCCAG AAGTGGTTGT TTCCCTTGCA TGGGACGAAA GCTTGGCTCC AAAGCATCCA GGTGAGAGAG GCAGGCATGC AGAGCTGCTA AGTCTAGAGG GAAGGACGGG AGAGAGGTTC CAGAGTTGGG TCTCAGCAGT CTATGTCACT GAGGTGGCTT CACTTAGAAT CTCTGGGCAT TGATTTTCTC ATCTAGAAAT TGAACAGAGA GCCAAATAAA CCTGAGAAAC TTTATTTCTC CAAAGACTTG ATTCCAAGAA ACATCTGTGA AATTCACTAA GTTTAAGATA TGAAGAGACA GACTAGTTAT TTCTGGATCT AAACAAGTAG ACTTAGTTGT AAAGAGAACA TTTTACTCTA TCTACAGAAG AGCTTTTAAA AACTGCAGCC AAGCCTGAGG GTAAGTTCAG GTGTGTGTGT GATGGGGCAG GAATGCAAAA ATGAGAGCAA AGGAGAATGA GTCTCAAATT CTGTGTGACA AGCACTGCTC TGCGTGTTTA TTCCTATCGA CTGAGGTTGT TCGTGCTACC GGCTGCAATG CAGCCAGCAT CACCTGTCAG CTAGCATGTG ACTTCCCCGA GATTCTTTTT CTTACCCACT GCTAACTCCA TACTCAATTT CTCATGCTCT CCCTGTCCCA GGCTCAAGGA AAAACATGGA CTGCTATTGC AGAATACCAG CGTGCATTGC AGGAGAACGT CGCTATGGAA CCTGCATCTA CCAGGGAAGA CTCTGGGCAT TCTGCTGCTG AGCTTGCAGA AAAAGAAAAA TGAGCTCAAA ATTTGCTTTG AGAGCTACAG GGAATTGCTA TTACTCCTGT ACCTTCTGCT CAATTTCCTT TCCTCATCTC AAATAAATGC CTTGTTACAA GATTTCTGTG TTTCCACCTC TTTAATGTGT GATATGTGTC TGTGTCAAGA CACTTGGGAT ACACGTACCA AAACGCAAAA TCAAATTTTT GAACAATATA-3' (FRAG. NO:___) (SEQ ID NO:11846)

5'-GGCBGCBBGG-3' (FRAG. NO:1805) (SEQ ID NO:11187)

5'-GG CTG GGG-3' (FRAG. NO:1806) (SEQ ID NO:11188)

5'-GGGGTCBCC-3' (FRAG. NO:1807) (SEQ ID NO:11189)

5'-GGG TCC TCB TGG CTG GGG TC-3' (FRAG. NO:1216) (SEQ ID NO:10594)

5'-CCT CTC TCC CGT CCT-3' (FRAG. NO:1217) (SEQ ID NO:10595)

5'-CGCTGCBBTC TGCTCCGGGG CTGCBGCBBC CTCBTCBGCTC TTGCCTGGBGTG GCTCBGCCTGG GCCTGCBGGG CCBCCBGGBGB BTGGCBGCBBG GBTGGCGBGGG TCCTCBTGGC TGGGGTCBCCT GGBGGBGGGB GBGCBGG-3' (FRAG. NO:1808) (SEQ ID NO:11190)

<u>Human Macrophage Inflammatory Protein-1-alpha/RANTES Receptor Nucleic Acid and Antisense Oligonucleotide Fragments</u>

5'-GTCTTTGTTT CTGGGCTCGT GCCCCBTCCC GGCTTCTCTC TGGTTCCGTC CTCTGTGGTG TTTGGCCCTG CTTCCTTTTG CCTGTTGAGG GGGCAGCAGT TGGGCCCCAA AGGCCCTCTC GTTCACCTTC TGGCACGGAGTT GCATCCCCATA GTCAAACTCT GTGGTCGTGT CATAGTCCTC TGTGGTGTTT GGAGTTTCCA TCCCGGCTTC TCTCTGGTTC CAAGGGAGB GGGGGCBGCB GTTGGGCCCC BBBGGCCCTC TCGTTCBCCT TCTGGCBCGG BGTTGCBTCC CCBTBGTCBB BCTCTGTGGT CGTGTCBTBG TCCTCTGTGG TGTTTGGBGT TTCCBTCCCG GCTTCTCTCT GGTTCCBBGG GB-3' (FRAG. NO:1809) (SEQ ID NO:11191)

5'-GGGCC CC-3' (FRAG. NO:1810) (SEQ ID NO:11192)
5'-GGGGGCBGC-3' (FRAG. NO:1811) (SEQ ID NO:11193)
5'-CCCGGCTTC-3' (FRAG. NO:1812) (SEQ ID NO:11194)
5'-GTC TTT GTT TCT GGG CTC GTG CC-3' (FRAG. NO:1218) (SEQ ID NO:10596)
5'-CCB TCC CGG CTT CTC TCT GGT TCC-3' (FRAG. NO:1219) (SEQ ID NO:10597)
5'-GTC CTCTGT GGT GTT TGG-3' (FRAG. NO:1220) (SEQ ID NO:10598)
5'-CCC TGC TTC CTT TTG CCT GTT-3' (FRAG. NO:1221) (SEQ ID NO:10599)
5'-GAGGGGGCAG CAGTTGGGCC CCAAAGGCCC TCTCGTTCAC CTTCTGGCAC GGAGTTGCAT CCCCATAGTC AAACTCTGTG GTCGT-3' (FRAG. NO:1222) (SEQ ID NO:10600)
5'-GTCATAGTCCTCTGTGGTGTTTGGAGTTTCCATCCCGGCTTCTCTCTGGTTCCAAGGGA-3' (FRAG.NO:1223)(SEQ ID NO:10601)
5'-GBGGGGGCBG CBGTTGGGCC CCBBBGGCCC TCTCGTTCBC CTTCTGGCBC GGBGTTGCBT CCCCBTBGTC BBBCTCTGTG GTCGTG-3' (FRAG. NO:1224) (SEQ ID NO:10602)
5'-TCBTBGTCCTCTGTGGTGTTTGGBGTTTCCBTCCCGGCTTCTCTCTGGTTCCBBGGGB-3'(FRAG. NO:1225)(SEQ ID NO:10603)

RANTES Antisense Oligonucleotide Fragments

5'-GGGCBCGGGG CBGTGGGCGG GCBBTGTBGG CBBBGCBGCB GGGTGTGGTG TCCGBGGBBT BTGGGGBGGC BGBTGCBGGB GCGCBGBGGG CBGTBGCBBT GBGGBTGBCB GCGBGGCGTG CCGCGGBGBC CTTCBTGGTB CCTGTGGBGB GGCTGTCGGB GGGGGTGTGG TGTCCGCTTG GCGGTTCTTT CGGGTGTTTC TTCTCTGGGT TGGCCTGCTG CTCGTCGTGGT CGCTCCGCTC CCGGGTTCGT CTCGCTCTGT CGCCCCTTCC TTCCTTGTCG TGTTCCTCCC TTCCTTGCCT CT-3' (FRAG. NO: 1813) (SEQ ID NO:11195)
5'-GGGTTGGC-3' (FRAG. NO: 1814) (SEQ ID NO:11196)
5'-CGGGG CBG-3' (FRAG. NO: 1815) (SEQ ID NO:11197)
5'-CCCGGGTTCG-3' (FRAG. NO: 1816) (SEQ ID NO:11198)
5'-GGGTGTGGTG-3' (FRAG. NO: 1817) (SEQ ID NO:11199)
5'-GGGCBCGGGG CBGTGGGCGG GCBBTGTBGG CBBBGCBGCB GGGTGTGGTG TCCGBGGBBT BTGGGGBGGC BGBTGCBGGB GCGC-3' (FRAG. NO:1226) (SEQ ID NO:10604)
5'-BGBGGGCBGTB GCBBTGBGGB TGBCBGCGBG·GCGTGCCGCG GBGBCCTTCB TGGTBCCTGT GGBGBGGCTG TCGGBGG-3' (FRAG. NO:1227) (SEQ ID NO:10605)
5'-GGGTGTGGTGTCCGCTTGGCGGTTCTTTCGGGTGTTTCTTCTCTGGGTTGGCCTGCTGCTCGTCGTGGTC-3' (FRAG. NO:1228) (SEQ ID NO:10606)
5'-GCTCCGCTCCCGGGTTCGTCTCGCTCTGTCGCCCCTTCCTTCCTTGTCGTGTTCCTCCCTTCCTTGCCTCT-3' (FRAG. NO:1229) (SEQ ID NO:10607)
5'-GGGTGTGGTGTCCG-3' (FRAG. NO:1230) (SEQ ID NO:10608)
5'-CTTGGCGGTTCTTTCGGGTG-3' (FRAG. NO:1231) (SEQ ID NO:10609)
5'-TTTCTTCTCTGGGTTGGC-3' (FRAG. NO:1232) (SEQ ID NO:10610)
5'-CTGCTGCTCGTCGTGGTC-3' (FRAG. NO:1233) (SEQ ID NO:10611)
5'-GCTCCGCTCCCGGGTTC-3' (FRAG. NO:1234) (SEQ ID NO:10612)
5'-GTCTCGCTCTGTCGCCC-3' (FRAG. NO:1235) (SEQ ID NO:10613)
5'-CTTCCTTCCTTGTC-3' (FRAG. NO:1236) (SEQ ID NO:10614)
5'-GTGTTCCTCCCTTCCTTGCCTCT-3' (FRAG. NO:1237) (SEQ ID NO:10615)
5'-GGGCBCGGGG CBGTGGGCGG GCBBTGTBGG CBBBGCBGCB GGGTGTGGTG TCCGBGGBBT BTGGGGBGGC BGBTGCBGGB GCGCBGBGGG CBGTBGCBBT GBGGBTGBCB GCGBGGCGTG CCGCGGBGBC CTTCBTGGTB CCTGTGGBGB GGCTGTCGGB GG-3' (FRAG. NO:1818) (SEQ ID NO:11200)

__Human Muscarinic Acetylcholine Receptor HM1 Nucleic Acid and Antisense Oligonucleotide Fragments__

5'-GCTGCCCGGC GGGGTGTGCG CTTGGCGCTC CCGTGCTCGG TTCTCTGTCT CCCGGTCCCC CTTGCCTGGC GTCTCGGGCC TTCGTCCTCT TCCTCTTCTT CCTTCCGCTC CGTGGGGGCT GCTTGGTGGG GGCCTGTGCCT CGGGGTCCCG GGGCTTCTGG CCCTTGCCGT TCATGGTGGC TAGGTGGGGC GTTCBTGGTG GCTBGGTGGG GC-3'(FRAG. NO:1819)(SEQ ID NO:11201)
5'-GGTGGGGC-3' (FRAG. NO:1820) (SEQ ID NO:11202)
5'-GCCCGGCGGGG-3' (FRAG. NO:1821) (SEQ ID NO:11203)
5'-CGG GGC TTC TGG CCC-3' (FRAG. NO:1822) (SEQ ID NO:11204)
5'-GTT CBT GGT GGC TBG GTG GGG C-3' (FRAG. NO:1238) (SEQ ID NO:10616)
5'-GCT GCC CGG CGG GGT GTG CGC TTG GC-3' (FRAG. NO:1239) (SEQ ID NO:10617)
5'-GCT CCC GTG CTC GGT TCT CTG TCT CCC GGT-3' (FRAG. NO:1240) (SEQ ID NO:10618)
5'-CCC CCT TTG CCT GGC GTC TCG G-3' (FRAG. NO:1241) (SEQ ID NO:10619)
5'-GCC TTC GTC CTC TTC CTC TTC TTC CTT CC-3' (FRAG. NO:1242) (SEQ ID NO:10620)
5'-GCT CCG TGG GGG CTG CTT GGT GGG GGC CTG TGC CTC GGG GTC C-3' (FRAG. NO:1243) (SEQ ID NO:10621)
5'-CGG GGC TTC TGG CCC TTG CC-3' (FRAG. NO:1244) (SEQ ID NO:10622)
5'-GTT CAT GGT GGC TAG GTG GGG C-3' (FRAG. NO: 1245) (SEQ ID NO:10623)

__Human Muscarinic Acetylcholine Receptor HM3 Nucleic Acid and Antisense Oligonucleotide Fragments__

5'-GGG GTG GGT BGG CCG TGT CTG GGGGTT GGC CBT GTT GGT TGC CTCT TGG TGG TGC GCC GGG CGCG TCT TGG CTT TCT TCT CCT TCG GGC CCT CGG GCC GGT GCT TGT GGGCT CCT CCC GGG CGG CCT CCC CGG GCG GGG GCT TCT TGGCG CTG GCG GGG GGG CCT CCTGCT CTG TGG CTG GGC GTT CCT TGG TGT TCT GGG TGGTGG CGG GCG TGG TGG CCT CTG TGGGGG CCC GCG GCT GCB GGG GTTG CCT GTC TGC TTC GTCCTT TGC GCT CCC GGG CCG CCGGG GTG GGT AGG CCG TGT CTG GGGGTT GGC CAT GTT GGT TGC CGGG CCC GCG GCT GCA GGG G-3' (FRAG. NO:1823) (SEQ ID NO:11205)
5'-CCC GGG CGG-3' (FRAG. NO:1824) (SEQ ID NO:11206)
5'-G GCG GGG GGG CC-3' (FRAG. NO:1825) (SEQ ID NO:11207)
5'-CCC GGG CCG CC-3' (FRAG. NO: 1826) (SEQ ID NO:11208)
5'-GG CCG TGT-3' (FRAG. NO:1827) (SEQ ID NO:11209)
5'-GGG GTG GGT BGG CCG TGT CTG GGG-3' (FRAG. NO:1246) (SEQ ID NO:10624)
5'-GTT GGC CBT GTT GGT TGC C-3' (FRAG. NO:1247) (SEQ ID NO:10625)
5'-TCT TGG TGG TGC GCC GGG C-3' (FRAG. NO:1248) (SEQ ID NO:10626)
5'-GCG TCT TGG CTT TCT TCT CCT TCG GGC CCT CGG GCC GGT GCT TGT GG-3'(FRAG.NO:1249)(SEQ ID NO:10627)
5'-GCT CCT CCC GGG CGG CCT CCC CGG GCG GGG GCT TCT TG-3' (FRAG. NO:1250) (SEQ ID NO:10628)
5'-GCG CTG GCG GGG GGG CCT CCT CC-3' (FRAG. NO:1251) (SEQ ID NO:10629)
5'-GCT CTG TGG CTG GGC GTT CCT TGG TGT TCT GGG TGG C-3' (FRAG. NO:1252) (SEQ ID NO:10630)

5'-TGG CGG GCG TGG TGG CCT CTG TGG TGG-3' (FRAG. NO:1253) (SEQ ID NO:10631)
5'-GGG CCC GCG GCT GCB GGG G-3' (FRAG. NO:1254) (SEQ ID NO:10632)
5'-TTG CCT GTC TGC TTC GTC-3' (FRAG. NO:1255) (SEQ ID NO:10633)
5'-CTT TGC GCT CCC GGG CCG CC-3' (FRAG. NO:1256) (SEQ ID NO:10634)
5'-GGG GTG GGT AGG CCG TGT CTG GGG-3' (FRAG. NO:1257) (SEQ ID NO:10635)
5'-GTT GGC CAT GTT GGT TGC C-3' (FRAG. NO:1258) (SEQ ID NO:10636)
5'-GGG CCC GCG GCT GCA GGG G-3' (FRAG. NO:1259) (SEQ ID NO:10637)

Human Fibronectin Antisense Oligonucleotide Fragments

5'-CGG TTT CCT TTG CGG TC TTG GCC CGG GCT CCG GGT G CCC GCC CGC CCG CCG GCC GCC GC CCC GCC GGG CTG TCC CCG CCC CGC CCC GGC CCG GGG CGC GGG GG CGG CCC TCC CGC CCC TCT GG GCC GGC GCG GGC GTC GG CCG CTC GCG CCT GGG GTT CCC TCT CCT CCC CCT GTG C GCC TGC CTC TTG CTC TTCTGC GTC CGC TGC CTT CTC CC CTC TCC TCG GCC GTT GCC TGT GC TGT CCG TCC TGT CGC CCT TCC GTG GTG C TGT TGT CTC TTC TGC CCT C GGT GTG CTG GTG CTG GTG GTG GTG CCT CTG CCC GTG CTC GCCCTG CCT GGG CTG GCC TCT TCG GGT GTG GCT TTG GGG CTC TCT TGG TTG CCC TTT CTT CTC GTG GTG CCT CTC CTC CCT GGC TTG GTC GT TGT CTG GGG TGG TGC TCC TCT CCC TTT CCC TGC TGG CCG TTT GT CCT GTT TTC TGT CTT CCT CT TTC CTC CTG TTT CTC CGT TTG GCT TGC TGC TTG CGG GGC TGT CTC C CTT GCC CCT GTG GGC TTT CCC TGG TCC GGT CTT CTC CTT GGG GGT C GCC CTT CTT GGT GGG CTGGCT CGT CTG TCT TTT TCC TTC C TGG GGG TGG CCG TTG TGG GCG GTG TGG TCC GCC T TGC CTC TGC TGG TCT TTC-3' (FRAG. NO:1828) (SEQ ID NO:11210)
5'-GGCCCGGGC-3' (FRAG. NO:1829) (SEQ ID NO:11211)
5'-GCCGGCGCGGGCG-3' (FRAG. NO:1830) (SEQ ID NO:11212)
5'-GCCTGGGCTGGCC-3' (FRAG. NO:1831) (SEQ ID NO:11213)
5'-GGGGG TGGCCG-3' (FRAG. NO:1832) (SEQ ID NO:11214)
5'-GG GGG TGG CCG TTG TGG GCG G-3' (FRAG. NO:1833) (SEQ ID NO:11215)
5'-CGG TTT CCT TTG CGG TC-3' (FRAG. NO:1260)(SEQ ID NO:10638)
5'-TTG GCC CGG GCT CCG GGT G-3' (FRAG. NO:1261)(SEQ ID NO:10639)
5'-CCC GCC CGC CCG CCG GCC GCC GC-3' (FRAG. NO:1262)(SEQ ID NO:10640)
5'-CCC GCC GGG CTG TCC CCG CCC CGC CCC-3' (FRAG. NO:1263)(SEQ ID NO:10641)
5'-GGC CCG GGG CGC GGG GG-3' (FRAG. NO:1264)(SEQ ID NO:10642)
5'-CGG CCC TCC CGC CCC TCT GG-3' (FRAG. NO:1265)(SEQ ID NO:10643)
5'-GCC GGC GCG GGC GTC GG-3' (FRAG. NO:1266)(SEQ ID NO:10644)
5'-CCG CTC GCG CCT GGG GTT CCC TCT CCT CCC CCT GTG C-3' (FRAG. NO:1267)(SEQ ID NO:10645)
5'-GCC TGC CTC TTG CTC TTC-3' (FRAG. NO:1268)(SEQ ID NO:10646)
5'-TGC GTC CGC TGC CTT CTC CC-3' (FRAG. NO:1269)(SEQ ID NO:10647)
5'CTC TCC TCG GCC GTT GCC TGT GC-3' (FRAG. NO:1270)(SEQ ID NO:10648)
5'-TGT CCG TCC TGT CGC CCT TCC GTG GTG C-3' (FRAG. NO:1271)(SEQ ID NO:10649)
5'-TGT TGT CTC TTC TGC CCT C-3' (FRAG. NO:1272)(SEQ ID NO:10650)
5'-GGT GTG CTG GTG CTG GTG GTG GTG-3' (FRAG. NO:1273)(SEQ ID NO:10651)
5'-CCT CTG CCC GTG CTC GCC-3' (FRAG. NO:1274)(SEQ ID NO:10652)
5'-CTG CCT GGG CTG GCC TCT TCG GGT-3' (FRAG. NO:1275)(SEQ ID NO:10653)
5'-GTG GCT TTG GGG CTC TCT TGG TTG CCC TTT-3' (FRAG. NO:1276)(SEQ ID NO:10654)
5'-CTT CTC GTG GTG CCT CTC CTC CCT GGC TTG GTC GT-3' (FRAG. NO:1277)(SEQ ID NO:10655)
5'- TGT CTG GGG TGG TGC TCC TCT CCC-3' (FRAG. NO:1278)(SEQ ID NO:10656)
5'-TTT CCC TGC TGG CCG TTT GT-3' (FRAG. NO:1279)(SEQ ID NO:10657)
5'-CCT GTT TTC TGT CTT CCT CT-3' (FRAG. NO:1280)(SEQ ID NO:10658)
5'-TTC CTC CTG TTT CTC CGT-3' (FRAG. NO:1281)(SEQ ID NO:10659)
5'-TTG GCT TGC TGC TTG CGG GGC TGT CTC C-3' (FRAG. NO:1282)(SEQ ID NO:10660)
5'-CTT GCC CCT GTG GGC TTT CCC-3' (FRAG. NO:1283)(SEQ ID NO:10661)
5'-TGG TCC GGT CTT CTC CTT GGG GGT C-3' (FRAG. NO:1284)(SEQ ID NO:10662)
5'-GCC CTT CTT GGT GGG CTG-3' (FRAG. NO:1285)(SEQ ID NO:10663)
5'-GCT CGT CTG TCT TTT TCC TTC C-3' (FRAG. NO:1286)(SEQ ID NO:10664)
5'-TGG GGG TGG CCG TTG TGG GCG GTG TGG TCC GCC T-3' (FRAG. NO:1287)(SEQ ID NO:10665)
5'-TGC CTC TGC TGG TCT TTC-3' (FRAG. NO:1288)(SEQ ID NO:10666)

Human Interleukin-1 (IL-1) Nucleic Acid and antisense Oligocnucleotide Fragments

5'-AAGCTTCTAC CCTAGTCTGG TGCTACACTT ACATTGCTTA CATCCAAGTG TGGTTATTTC TGTGGCTCCT GTTATAACTA TTATAGCACC AGGTCTATGA CCAGGAGAAT TAGACTGGCA TTAAATCAGA ATAAGAGATT TTGCACCTGC AATAGACCTT ATGACACCTA ACCAACCCCA TTATTTACAA TTAAACAGGA ACAGAGGGAA TACTTTATCC AACTCACACA AGCTGTTTTC CTCCCAGATC CATGCTTTTT TGCGTTTATT ATTTTTTAGA GATGGGGGCT TCACTATGTT GCCCACACTG GACTAAAACT CTGGGCCTCA AGTGATTGTC CTGCCTCAGC CTCCTGAATA GCTGGGACTA CAGGGGCATG CCATCACACC TAGTTCATTT CCTCTATTTA AAATATACAT GGCTTAAACT CCAACTGGGA ACCCAAAACA TTCATTTGCT AAGAGTCTGG TGTTCTACCA CCTGAACTAG GCTGGCCACA GGAATTATAA AAGCTGAGAA ATTCTTTAAT AATAGTAACC AGGCAACATC ATTGAAGGCT CATATGTAAA AATCCATGCC TTCCTTTCTC CCAATCTCCA TTCCCAAACT TAGCCACTGG TTCTGGCTGA GGCCTTACGC ATACCTCCCG GGGCTTGCAC ACACCTTCTT CTACAGAAGA CACACCTTGG GCATATCCTA CAGAAGACCA GGCTTCTCTC TGGTCCTTGG TAGAGGGCTA CTTTACTGTA ACAGGGCCAG GGTGGAGAGT TCTCTCCTGA AGCTCCATCC CCTCTATAGG AAATGTGTTG ACAATATTCA GAAGAGTAAG AGGATCAAGA CTTCTTTGTG CTCAAATACC ACTGTTCTCT TCTCTACCCT GCCCTAACCA GGAGCTTGTC ACCCCAAACT CTGAGGTGAT TTATGCCTTA ATCAAGCAAA CTTCCCTCTT CAGAAAAGAT GGCTCATTTT CCCTCAAAAG TTGCCAGGAG CTGCCAAGTA TTCTGCCAAT TCACCCTGGA GCACAATCAA CAAATTCAGC CAGAACACAA CTACAGCTAC TATTAGAACT ATTATTATTA ATAAATTCCT CTCCAAATCT AGCCCCTTGA CTTCGGATTT CACGATTTCT CCCTTCCTCC TAGAAACTTG ATAAGTTTCC CGCGCTTCCC TTTTTCTAAG ACTACATGTT TGTCATCTTA TAAAGCAAAG GGGTGAATAA ATGAACCAAA TCAATAACTT CTGGAATATC TGCAAACAAC AATAATATCA GCTATGCCAT CTTTCACTAT TTTAGCCAGT ATCGAGTTGA ATGAACATAG AAAAATACAA AACTGAATTC TTCCCTGTAA ATTCCCCGTT TTGACGACGC ACTTGTAGCC ACGTAGCCAC GCCTACTTAA GACAATTACA AAAGGCGAAG AAGACTGACT CAGGCTTAAG CTGCCAGCCA GAGAGGGAGT CATTTCATTG GCGTTTGAGT CAGCAAAGGT ATTGTCCTCA CATCTCTGGC TATTAAAGTA TTTTCTGTTG TTGTTTTTCT CTTTGGCTGT TTTCTCTCAC ATTGCCTTCT CTAAAGCTAC AGTCTCTCCT TTCTTTTCTT GTCCCTCCCT GGTTTGGTAT GTGACCTAGA ATTACAGTCA GATTTCAGAA AATGATTCTC TCATTTTGCT GATAAGGACT GATTCGTTTT ACTGAGGGAC GGCAGAACTA GTTTCCTATG AGGGCATGGG TGAATACAAC TGAGGCTTCT CATGGGAGGG

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AGTGCTGGGA TTACAGGCAT GAGCCACCAC GCCTGGCCCA GAGAGGGATG ATCTTTAGAA GCTCGGGATT CTTTCAAGCC
CTTTCCTCCT CTCTGAGCTT TCTACTCTCT GATGTCAAAG CATGGTTCCT GGCAGGACCA CCTCACCAGG CTCCCTCCCT
CGCTCTCTCC GCAGTGCTCC TTCCAGGACC TGGACCTCTG CCCTCTGGAT GGCGGCATCC AGCTACGAAT CTCCGACCAC
CACTACAGCA AGGGCTTCAG GCAGGCCGCG TCAGTTGTTG TGGCCATGGA CAAGCTGAGG AAGATGCTGG TTCCCTGCCC
ACAGACCTTC CAGGAGAATG ACCTGAGCAC CTTCTTTCCC TTCATCTTTG AAGAAGGTAG TTAGCCAAGA GCAGGCAGTA
GATCTCCACT TGTGTCCTCT TGGAAGTCAT CAAGCCCCAG CCAACTCAAT TCCCCCAGAG CCAAAGCCCT TTAAAGGTAG
AAGGCCCAGC GGGGAGACAA AACAAAGAAG GCTGGAAACC AAAGCAATCA TCTCTTTAGT GGAAACTATT CTTAAAGAAG
ATCTTGATGG CTACTGACAT TTGCAACTCC CTCACTCTTT CTCAGGGGCC TTTCACTTAC ATTGTCACCA GAGGTTCGTA
ACCTCCCTGT GGGCTAGTGT TATGACCATC ACCATTTTAC CTAAGTAGCT CTGTTGCTCG GCCACAGTGA GCAGTAATAG
ACCTGAAGCT GGAACCCATG TCTAATAGTG TCAGGTCCAG TGTTCTTAGC CACCCCACTC CCAGCTTCAT CCCTACTGGT
GTTGTCATCA GACTTTGACC GTATATGCTC AGGTGTCCTC CAAGAAATCA AATTTTGCCA CCTCGCCTCA CGAGGCCTGC
CCTTCTGATT TTATACCTAA ACAACATGTG CTCCACATTT CAGAACCTAT CTTCTTCGAC ACATGGGATA ACGAGGCTTA
TGTGCACGAT GCACCTGTAC GATCACTGAA CTGCACGCTC CGGGACTCAC AGCAAAAAAG CTTGGTGATG TCTGGTCCAT
ATGAACTGAA AGCTCTCCAC CTCCAGGGAC AGGATATGGA GCAACAAGGT AAATGGAAAC ATCCTGGTTT CCCTGCCTGG
CCTCCTGGCA GCTTGCTAAT TCTCCATGTT TTAAACAAAG TAGAAAGTTA ATTTAAGGCA AATGATCAAC ACAAGTGAAA
AAAAATATTA AAAAGGAATA TACAAACTTT GGTCCTAGAA ATGGCACATT TGATTGCACT GGCCAGTGCA TTTGTTAACA
GGAGTGTGAC CCTGAGAAAT TAGACGGCTC AAGCACTCCC AGGACCATGT CCACCCAAGT CTCTTGGGCA TAGTGCAGTG
TCAATTCTTC CACAATATGG GGTCATTTGA TGGACATGGC CTAACTGCCT GTGGGTTCTC TCTTCCTGTT GTTGAGGCTG
AAACAAGAGT GCTGGAGCGA TAATGTGTCC ATCCCCCTCC CCAGTCTTCC CCCCTTGCCC CAACATCCGT CCCACCCAAT
GCCAGGTGGT TCCTTGTAGG GAAATTTTAC CGCCCAGCAG GAACTTATAT CTCTCCGCTG TAACGGGCAA AAGTTTCAAG
TGCGGTGAAC CCATCATTAG CTGTGGTGAT CTGCCTGGCA TCGTGCCACA GTAGCCAAAG CCTCTGCACA GGAGTGTGGG
CAACTAAGGC TGCTGACTTT GAAGGACAGC CTCACTCAGG GGGAAGCTAT TTGCTCTCAG CCAGGCCAAG AAAATCCTGT

TTCTTTGGAA TCGGGTAGTA AGAGTGATCC CAGGGCCTCC AATTGACACT GCTGTGACTG AGGAAGATCA AAATGAGTGT
CTCTCTTTGG AGCCACTTTC CCAGCTCAGC CTCTCCTCTC CCAGTTTCTT CCCATGGGCT ACTCTCTGTT CCTGAAACAG
TTCTGGTGCC TGATTTCTGG CAGAAGTACA GCTTCACCTC TTTCCTTTCC TTCCACATTG ATCAAGTTGT TCCGCTCCTG
TGGATGGGCA CATTGCCAGC CAGTGACACA ATGGCTTCCT TCCTTCCTTC CTTCAGCATT TAAAATGTAG ACCCTCTTTC
ATTCTCCGTT CCTACTGCTA TGAGGCTCTG AGAAACCCTC AGGCCTTTGA GGGGAAACCC TAAATCAACA AAATGACCCT
GCTATTGTCT GTGAGAAGTC AAGTTATCCT GTGTCTTAGG CCAAGGAACC TCACTGTGGG TTCCCACAGA GGCTACCAAT
TACATGTATC CTACTCTCGG GGCTAGGGGT TGGGGTGACC CTGCATGCTG TGTCCCTAAC CACAAGACGC CCTTCTTTCT
TCAGTGGTGT TCTCCATGTC CTTTGTACAA GGAGAAGAAA GTAATGACAA AATACCTGTG GCCTTGGGCC TCAAGGAAAA
GAATCTGTAC CTGTCCTGCG TGTTGAAAGA TGATAAGCCC ACTCTACAGC TGGAGGTAAG TGAATGCTAT GGAATGAAGC
CCTTCTCAGC CTCCTGCTAC CACTTATTCC CAGACAATTC ACCTTCTCCC CGCCCCCATC CCTAGGAAAA GCTGGGAACA
GGTCTATTTG ACAAGTTTTG CATTAATGTA AATAAATTTA ACATAATTTT TAACTGCGTG CAACCTTCAA TCCTGCTGCA
GAAAATTAAA TCATTTTGCC GATGTTATTA TGTCCTACCA TAGTTACAAC CCCAACAGAT TATATATTGT TAGGGCTGCT
CTCATTTGAT AGACACCTTG GGAAATAGAT GACTTAAAGG GTCCCATTAT CACGTCCACT CCACTCCCAA AATCACCACC
ACTATCACCT CCAGCTTTCT CAGCAAAAGC TTCATTTCCA AGTTGATGTC ATTCTAGGAC CATAAGGAAA AATACAATAA
AAAGCCCCTG GAAACTAGGT ACTTCAAGAA GCTCTAGCTT AATTTTCACC CCCCCAAAAA AAAAAAATTC TCACCTACAT
TATGCTCCTC AGCATTTGGC ACTAAGTTTT AGAAAAGAAG AAGGGCTCTT TTAATAATCA CACAGAAAGT TGGGGGCCCA
GTTACAACTC AGGAGTCTGG CTCCTGATCA TGTGACCTGC TCGTCAGTTT CCTTTCTGGC CAACCCAAAG AACATCTTTC
CCATAGGCAT CTTTGTCCCT TGCCCCACAA AAATTCTTCT TTCTCTTTCG CTGCAGAGTG TAGATCCCAA AAATTACCCA
AAGAAGAAGA TGGAAAAGCG ATTTGTCTTC AACAAGATAG AAATCAATAA CAAGCTGGAA TTTGAGTCTG CCCAGTTCCC
CAACTGGTAC ATCAGCACCT CTCAAGCAGA AAACATGCCC GTCTTCCTGG GAGGGACCAA AGGCGGCCAG GATATAACTG
ACTTCACCAT GCAATTTGTG TCTTCCTAAA GAGAGCTGTA CCCAGAGAGT CCTGTGCTGA ATGTGGACTC AATCCCTAGG
GCTGGCAGAA AGGGAACAGA AAGGTTTTTG AGTACGGCTA TAGCCTGGAC TTTCCTGTTG TCTACACCAA TGCCCAACTG
CCTGCCTTAG GGTAGTGCTA AGAGGATCTC CTGTCCATCA GCCAGGACAG TCAGCTCTCT CCTTTCAGGG CCAATCCCCA
GCCCTTTTGT TGAGCCAGGC CTCTCTCACC TCTCCTACTC ACTTAAAGCC CGCCTGACAG AAACCACGGC CACATTTGGT
TCTAAGAAAC CCTCTGTCAT TCGCTCCCAC ATTCTGATGA GCAACCGCTT CCCTATTTAT TTATTTATTT GTTTGTTTGT
TTTGATTCAT TGGTCTAATT TATTCAAAGG GGGCAAGAAG TAGCAGTGTC TGTAAAAGAG CCTAGTTTTT AATAGCTATG
GAATCAATTC AATTTGGACT GGTGTGCTCT CTTTAAATCA AGTCCTTTAA TTAAGACTGA AAATATATAA GCTCAGATTA
TTTAAATGGG AATATTTATA AATGAGCAAA TATCATACTG TTCAATGGTT CTGAAATAAA CTTCACTGAA GAAAAAAAAA
AAAGGGTCTC TCCTGATCAT TGACTGTCTG GATTGACACT GACAGTAAGC AAACAGGCTG TGAGAGTTCT TGGGACTAAG
CCCACTCCTC ATTGCTGAGT GCTGCAAGTA CCTAGAAATA TCCTTGGCCA CCGAAGACTA TCCTCCTCAC CCATCCCCTT
TATTTCGTTG TTCAACAGAA GGATATTCAG TGCACATCTG GAACAGGATC AGCTGAAGCA CTGCAGGGAG TCAGGACTGG
TAGTAACAGC TACCATGATT TATCTATCAA TGCACCAAAC ATCTGTTGAG CAAGCGCTAT GTACTAGGAG CTGGGAGTAC
AGAGATGAGA ACAGTCACAA GTCCCTCCTC AGATAGGAGA GGCAGCTAGT TATAAGCAGA ACAAGGTAAC ATGACAAGTA
GAGTAAGATA GAAGAACGAA GAGGAGTAGC CAGGAAGGAG GGAGGAGAAC GACATAAGAA TCAAGCCTAA AGGGATAAAC
AGAAGATTTC CACACATGGG CTGGGCCAAT TGGGTGTCGG TTACGCCTGT AATCCCAGCA CTTTGGGTGG CAGGGGCAGA
AAGATCGCTT GAGCCCAGGA GTTCAAGACC AGCCTGGGCA ACATAGTGAG ACTCCCATCT CTACAAAAAA TAAATAAATA
AATAAAACAA TCAGCCAGGC ATGCTGGCAT GCACCTGTAG TCCTAGCTAC TTGGGAAGCT GACACTGGAG GATTGCTTGA
GCCCAGAAGT TCAAGACTGC AGTGAGCTTA TCCGTTGACC TGCAGGTCGA C-3' (FRAG. NO:_)(SEQ ID NO:11881)

5'-ACAAACCTTT TCGAGGCAAA AGGCAAAAAA GGCTGCTCTG GGATTCTCTT CAGCCAATCT TCAATGCTCA AGTGTCTGAA
GCAGCCATGG CAGAAGTACC TAAGCTCGCC AGTGAAATGA TGGCTTATTA CAGTGGCAAT GAGGATGACT TGTTCTTTGA
AGCTGATGGC CCTAAACAGA TGAAGTGCTC CTTCCAGGAC CTGGACCTCT GCCCTCTGGA TGGCGGCATC CAGCTACGAA
TCTCCGACCA CCACTACAGC AAGGGCTTCA GGCAGGCCGC GTCAGTTGTT GTGGCCATGG ACAAGCTGAG GAAGATGCTG
GTTCCCTGCC CACAGACCTT CCAGGAGAAT GACCTGAGCA CCTTCTTTCC CTTCATCTTT GAAGAAGAAC CTATCTTCTT
CGACACATGG GATAACGAGG CTTATGTGCA CGATGCACCT GTACGATCAC TGAACTGCAC GCTCCGGGAC TCACAGCAAA
AAAGCTTGGT GATGTCTGGT CCATATGAAC TGAAAGCTCT CCACCTCCAG GGACAGGATA TGGAGCAACA AGTGGTGTTC
TCCATGTCCT TTGTACAAGG AGAAGAAAGT AATGACAAAA TACCTGTGGC CTTGGGCCTC AAGGAAAAGA ATCTGTACCT
GTCCTGCGTG TTGAAAGATG ATAAGCCCAC TCTACAGCTG GAGAGTGTAG ATCCCAAAAA TTACCCAAAG AAGAAGATGG
AAAAGCGATT TGTCTTCAAC AAGATAGAAA TCAATAACAA GCTGGAATTT GAGTCTGCCC AGTTCCCCAA CTGGTACATC
AGCACCTCTC AAGCAGAAAA CATGCCCGTC TTCCTGGGAG GGACCAAAGG CGGCCAGGAT ATAACTGACT TCACCATGCA
ATTTGTGTCT TCCTAAAGAG AGCTGTACCC AGAGAGTCCT GTGCTGAATG TGGACTCAAT CCCTAGGGCT GGCAGAAAGG
GAACAGAAAG GTTTTTGAGT ACGGCTATAG CCTGGACTTT CCTGTTGTCT ACACCAATGC CCAACTGCCT GCCTTAGGGT
AGTGCTAAGA GGATCTCCTG TCCATCAGCC AGGACAGTCA GCTCTCTCCT TTCAGGGCCA ATCCCAGCCC TTTTGTTGAG
CCAGGCCTCT CTCACCTCTC CTACTCACTT AAAGCCCGCC TGACAGAAAC CAGGCCACAT TTTGGTTCTA AGAAACCCTC
CTCTGTCATT CGCTCCCACA TTCTGATGAG CAACCGCTTC CCTATTTATT TATTTATTTG TTTGTTTGTT TTGATTCATT
GGTCTAATTT ATTCAAAGGG GGCAAGAAGT AGCAGTGTCT GTAAAAGAGC CTAGTTTTTA ATAGCTATGG AATCAATTCA
ATTTGGACTG GTGTGCTCTC TTTAAATCAA GTCCTTTAAT TAAGACTGAA AATATATAAG CTCAGATTAT TTAAATGGGA
ATATTTATAA ATGAGCAAAT ATCATACTGT TCAATGGTTC TCAAATAAAC TTCACT-3' (FRAG. NO:_)(SEQ ID NO:11882)

5'-CTGGCAGGAG TAGCAGCTGC CCCTTGGCGC GACTGCTGGA GCCGCGAACT AGAGAAACAC AGACACGCCT CATAGAGCAA
CGGCGTCTCT CGGAGCGTGG AGCCCGCCAA GCTCGAGCTG AGCTTTCGCT TGCCGTCCAC CACTGCCCAC ACTGTCGTTT
GCTGCCATCG CAGACCTGCT GCTGACTTCC ATCCCTCTGG ATCCGGCAAG GGCCTGCGAT TTTGACAATG TCAAGATTTA
CCGTATATCC CTGTTTGTTT GGATACACCA GTGACGTCCA CTTCTAGAAG ACAAAGTTAT ATTACTTAAA CAACCAAAGA
TATGAAACTA TCCATGAAGA ACAATATTAT CAATACACAG CAGTCTTTTG TAACCATGCC CAATGTGATT GTACCAGATA
TTGAAAAGGA AATACGAAGG ATGGAAAATG GAGCATGCAG CTCCTTTTCT GAGGATGATG ACAGTGCCTC TACATCTGAA
GAATCAGAGA ATGAAAACCC TCATGCAAGG GGTTCCTTTA GTTATAAGTC ACTCAGAAAG GGAGGACCAT CACAGAGGGA
GCAGTACCTG CCTGGTGCCA TTGCCATTTT TAATGTGAAC AACAGCGACA ATAAGGACCA GGAACCAGAA GAAAAAAAGA
AAAAGAAAAA AGAAAAGAAG AGCAAGTCAG ATGATAAAAA CGAAAATAAA AACGACCCAA AGAAGAAGAT GGAAAAGCGA-3' (FRAG. NO:_)(SEQ ID NO:11883)

5'-ATGGCCAAAG TTCCAGACAT GTTTGAAGAC CTGAAGAACT GTTACAGTGA AAATGAAGAA GACAGTTCCT CCATTGATCA
TCTGTCTCTG AATCAGAAAT CCTTCTATCA TGTAAGCTAT GGCCCACTCC ATGAAGGCTG CATGGATCAA TCTGTGTCTC
TGAGTATCTC TGAAACCTCT AAAACATCCA AGCTTACCTT CAAGGAGAGC ATGGTGGTAG TAGCAACCAA CGGGAAGGTT
CTGAAGAAGA GACGGTTGAG TTTAAGCCAA TCCATCACTG ATGATGACCT GGAGGCCATC GCCAATGACT CAGAGGAAGA
AATCATCAAG CCTAGGTCAG CACCTTTTAG CTTCCTGAGC AATGTGAAAT ACAACTTTAT GAGGATCATC AAATACGAAT
TCATCCTGAA TGACGCCCTC AATCAAAGTA TAATTCGAGC CAATGATCAG TACCTCACGG CTGCTGCATT ACATAATCTG
GATGAAGCAG TGAAATTTGA CATGGGTGCT TATAAGTCAT CAAAGGATGA TGCTAAAATT ACCGTGATTC TAAGAATCTC
AAAAACTCAA TTGTATGTGA CTGCCCAAGA TGAAGACCAA CCAGTGCTGC TGAAGGAGAT GCCTGAGATA CCCAAAACCA

TCACAGGTAG TGAGACCAAC CTCCTCTTCT TCTGGGAAAC TCACGGCACT AAGAACTATT TCACATCAGT TGCCCATCCA AACTTGTTTA TTGCCACAAA GCAAGACTAC TGGGTGTGCT TGGCAGGGGG GCCACCCTCT ATCACTGACT TTCAGATACT GGAAAACCAG GCGTAGGTCT GGAGTCTCAC TTGTCTCACT TGTGCAGTGT TGACAGTTCA TATGTACCAT GTACATGAAG AAGCTAAATC CTTTACTGTT AGTCATTTGC TGAGCATGTA CTGAGCCTTG TAATTCTAAA TGAATGTTTA CACTCTTTGT AAGAGTGGAA CCAACACTAA CATATAATGT TGTTATTTAA AGAACACCCT ATATTTTGCA TAGTACCAAT CATTTTAATT ATTATTCTTC ATAACAATTT TAGGAGGACC AGAGCTACTG ACTATGGCTA CCAAAAAGAC TCTACCCATA TTACAGATGG GCAAATTAAG GCATAAGAAA ACTAAGAAAT ATGCACAATA GCAGTTGAAA CAAGAAGCCA CAGACCTAGG ATTTCATGAT TTCATTTCAA CTGTTTGCCT TCTGCTTTTA AGTTGCTGAT GAACTCTTAA TCAAATAGCA TAAGTTTCTG GGACCTCAGT TTTATCATTT TCAAAATGGA GGGAATAATA CCTAAGCCTT CCTGCCGCAA CAGTTTTTTA TGCTAATCAG GGAGGTCATT TTGGTAAAAT ACTTCTCGAA GCCGAGCCTC AAGATGAAGG CAAAGCACGA AATGTTATTT TTTAATTATT ATTTATATAT GTATTTATAA ATATATTTAA GATAATTATA ATATACTATA TTTATGGGAA CCCCTTCATC CTCTGAGTGT GACCAGGCAT CCTCCACAAT AGCAGACAGT GTTTTCTGGG ATAAGTAAGT TTGATTTCAT TAATACAGGG CATTTTGGTC CAAGTTGTGC TTATCCCATA GCCAGGAAAC TCTGCATTCT AGTACTTGGG AGACCTGTAA TCATATAATA AATGTACATT AATTACCTTG AGCCAGTAAT TGGTCCGATC TTTGACTCTT TTGCCATTAA ACTTACCTGG GCATTCTTGT TTCATTCAAT TCCACCTGCA ATCAAGTCCT ACAAGCTAAA ATTAGATGAA CTCAACTTTG ACAACCATAG ACCACTGTTA TCAAAACTTT CTTTTCTGGA ATGTAATCAA TGTTTCTTCT AGGTTCTAAA AATTGTGATC AGACCATAAT GTTACATTAT TATCAACAAT AGTGATTGAT AGAGTGTTAT CAGTCATAAC TAAATAAAGC TTGCAAGTGA GGGAGTCATT TCATTGGCGT TTGAGTCAGC AAAGAAGTCA AG-3' (FRAG. NO:_)(SEQ ID NO:11884)

5'-AGCTGCCAGC CAGAGAGGGA GTCATTTCAT TGGCGTTTGA GTCAGCAAAG AAGTCAAGAT GGCCAAAGTT CCAGACATGT TTGAAGACCT GAAGAACTGT TACAGTGAAA ATGAAGAAGA CAGTTCCTCC ATTGATCATC TGTCTCTGAA TCAGAAATCC TTCTATCATG TAAGCTATGG CCCACTCCAT GAAGGCTGCA TGGATCAATC TGTGTCTCTG AGTATCTCTG AAACCTCTAA AACATCCAAG CTTACCTTCA AGGAGAGCAT GGTGGTAGTA GCAACCAACG GGAAGGTTCT GAAGAAGAGA CGGTTGAGTT TAAGCCAATC CATCACTGAT GATGACCTGG AGGCCATCGC CAATGACTCA GAGGAAGAAA TCATCAAGCC TAGGTCATCA CCTTTTAGCT TCCTGAGCAA TGTGAAATAC AACTTTATGA GGATCATCAA ATACGAATTC ATCCTGAATG ACGCCCTCAA TCAAAGTATA ATTCGAGCCA ATGATCAGTA CCTCACGGCT GCTGCATTAC ATAATCTGGA TGAAGCAGTG AAATTTGACA TGGGTGCTTA TAAGTCATCA AAGGATGATG CTAAAATTAC CGTGATTCTA AGAATCTCAA AAACTCAATT GTATGTGACT GCCCAAGATG AAGACCAACC AGTGCTGCTG AAGGAGATGC CTGAGATACC CAAAACCATC ACAGGTAGTG AGACCAACCT CCTCTTCTTC TGGGAAACTC ACGGCACTAA GAACTATTTC ACATCAGTTG CCCATCCAAA CTTGTTTATT GCCACAAAGC AAGACTACTG GGTGTGCTTG GCAGGGGGGC CACCCTCTAT CACTGACTTT CAGATACTGG AAAACCAGGC GTAGGTCTGG AGTCTCACTT GTCTCACTTG TGCAGTGTTG ACAGTTCATA TGTACCATGT ACATGAAGAA GCTAAATCCT TTACTGTTAG TCATTTGCTG AGCATGTACT GAGCCTTGTA ATTCTAAATG AATGTTTACA CTCTTTGTAA GAGTGGAACC AACACTAACA TATAATGTTG TTATTTAAAG AACACCCTAT ATTTTGCATA GTACCAATCA TTTTAATTAT TATTCTTCAT AACAATTTTA GGAGGACCAG AGCTACTGAC TATGGCTACC AAAAAGACTC TACCCATATT ACAGATGGGC AAATTAAGGC ATAAGAAAAC TAAGAAATAT GCACAATAGC AGTCGAAACA AGAAGCCACA GACCTAGGAT TTCATGATTT CATTTCAACT GTTTGCCTTC TGCTTTTAAG TTGCTGATGA ACTCTTAATC AAATAGCATA AGTTTCTGGG ACCTCAGTTT TATCATTTTC AAAATGGAGG GAATAATACC TAAGCCTTCC TGCCGCAACA GTTTTTTATG CTAATCAGGG AGGTCATTTT GGTAAAATAC TTCTCGAAGC CGAGCCTCAA GATGAAGGCA AAGCACGAAA TGTTATTTTT TAATTATTAT TTATATATGT ATTTATAAAT ATATTTAAGA TAATTATAAT ATACTATATT TATGGGAACC CCTTCATCCT CTGAGTGTGA CCAGGCATCC TCCACAATAG CAGACAGTGT TTTCTGGGAT AAGTAAGTTT GATTTCATTA ATACAGGGCA TTTTGGTCCA AGTTGTGCTT ATCCCATAGC CAGGAAACTC TGCATTCTAG TACTTGGGAG ACCTGTAATC ATATAATAAA TGTACATTAA TTACCTTGAG CCAGTAATTG GTCCGATCTT TGACTCTTTT GCCATTAAAC TTACCTGGGC ATTCTTGTTT CATTCAATTC CACCTGCAAT CAAGTCCTAC AAGCTAAAAT TAGATGAACT CAACTTTGAC AACCATGAGA CCACTGTTAT CAAAACTTTC TTTTCTGGAA TGTAATCAAT GTTTCTTCTA GGTTCTAAAA ATTGTGATCA GACCATAATG TTACATTATT ATCAACAATA GTGATTGATA GAGTGTTATC AGTCATAACT AAATAAAGCT TGCAACAAAA TTCTCTG-3' (FRAG. NO:_)(SEQ ID NO:11885)

Human Interleukin-1 Receptor (IL-1 R) Nucleic Acids and Anti-sense Oligonucleotide Fragments

5'-GCCACGTGCT GCTGGGTCTC AGTCCTCCAC TTCCCGTGTC CTCTGGAAGT TGTCAGGAGC AATGTTGCGC TTGTACGTGT TGGTAATGGG AGTTTCTGCC TTCACCCTTC AGCCTGCGGC ACACACAGGG GCTGCCAGAA GCTGCCGGTT TCGTGGGAGG CATTACAAGC GGGAGTTCAG GCTGGAAGGG GAGCCTGTAG CCCTGAGGTG CCCCCAGGTG CCCTACTGGT TGTGGGCCTC TGTCAGCCCC CGCATCAACC TGACATGGCA TAAAAATGAC TCTGCTAGGA CGGTCCCAGG AGAAGAAGAG ACACGGATGT GGGCCCAGGA CGGTGCTCTG TGGCTTCTGC CAGCCTTGCA GGAGGACTCT GGCACCTACG TCTGCACTAC TAGAAATGCT TCTTACTGTG ACAAAATGTC CATTGAGCTC AGAGTTTTTG AGAATACAGA TGCTTTCCTG CCGTTCATCT CATACCCGCA AATTTTAACC TTGTCAACCT CTGGGGTATT AGTATGCCCT GACCTGAGTG AATTCACCCG TGACAAAACT GACGTGAAGA TTCAATGGTA CAAGGATTCT CTTCTTTTGG ATAAAGACAA TGAGAAATTT CTAAGTGTGA GGGGGACCAC TCACTTACTC GTACACGATG TGGCCCTGGA AGATGCTGGC TATTACCGCT GTGTCCTGAC ATTTGCCCAT GAAGGCCAGC AATACAACAT CACTAGGAGT ATTGAGCTAC GCATCAAGAA AAAAAAAGAA GAGACCATTC CTGTGATCAT TTCCCCCCTC AAGACCATAT CAGCTTCTCT GGGGTCAAGA CTGACAATCC CGTGTAAGGT GTTTCTGGGA ACCGGCACAC CCTTAACCAC CATGCTGTGG TGGACGGCCA ATGACACCCA CATAGAGAGC GCCTACCCGG GAGGCCGCGT GACCGAGGGG CCACGCCAGG AATATTCAGA AAATAATGAG AACTACATTG AAGTGCCATT GATTTTTGAT CCTGTCACAA GAGAGGATTT GCACATGGAT TTTAAATGTG TTGTCCATAA TACCCTGAGT TTTCAGACAC TACGCACCAC AGTCAAGGAA GCCTCCTCCA CGTTCTCCTG GGGCATTGTG CTGGCCCCAC TTTCACTGGC CTTCTTGGTT TTGGGGGGAA TATGGATGCA CAGACGGTGC AAACACAGAA CTGGAAAAGC AGATGGTCTG ACTGTGCTAT GGCCTCATCA TCAAGACTTT CAATCCTATC CCAAGTGAAA TAAATGGAAT GAAATAATTC AAACACAAAA AAAAAAAAAA AAAAAAAA GCCGGAGCCG ACTCGGAGCG CGCGGCGCGG CCGGGAGGAG CCGAGCGCGC CGGGCGCGGC GTGGGGGCGC CGGCTGCCCC GCGCGCCCAG GGAGCGGCAG GAATGTGACA ATCGCGCGCC CGCACCGTAG CACTCCTCGC TCGGCTCCTA GGGCTCTCGC CCTCTGAGCT GAGCCGGGTT CCGCCCCGGGC TGGGATCCCA TCACCCTCCA CGGCCGTCCG TCCAGGTAGA CGCACCCTCT GAAGATGGTG ACTCCCTCCT GAGAAGCTGG ACCCCTTGGT AAAAGACAAG GCCTTCTCCA AGAAGAATAT GAAAGTGTTA CTCAGACTTA TTTGTTTCAT AGCTCTACTG ATTTCTTCTC TGGAGGCTGA TAAATGCAAG GAACGTGAAG AAAAAATAAT TTTAGTGTCA TCTGCAAATG AAATTGATGT TCGTCCCTGT CCTCTTAACC CAAATGAACA CAAAGGCACT ATAACTTGGT ATAAAGATGA CAGCAAGACA CCTGTATCTA CAGAACAAGC CTCCAGGATT CATCAACACA AAGAGAAACT TTGGTTTGTT CCTGCTAAGG TGGAGGATTC AGGACATTAC TATTGCGTGG TAAGAAATTC ATCTTACTGC CTCAGAATTA AAATAAGTGC AAAATTTGTG GAGAATGAGC CTAACTTATG TTATAATGCA CAAGCCATAT TTAAGCAGAA ACTACCCGTT GCAGGAGACG GAGGACTTGT GTGCCCTTAT ATGGAGTTTT TTAAAAATGA AAATAATGAG TTACCTAAAT TACAGTGGTA TAAGGATTGC AAACCTCTAC TTCTTGACAA TATACACTTT AGTGGAGTCA AAGATAGGCT CATCGTGATG AATGTGGCTG AAAAGCATAG AGGGAACTAT ACTTGTCATG CATCCTACAC ATACTTGGGC AAGCAATATC CTATTACCCG GGTAATAGAA TTTATTACTC TAGAGGAAAA CAAACCCACA AGGCCTGTGA TTGTGAGCCC AGCTAATGAG ACAATGGAAG TAGACTTGGG ATCCCAGATA CAATTGATCT GTAATGTCAC CGGCCAGTTG AGTGACATTG CTTACTGGAA

GTGGAATGGG TCAGTAATTG ATGAAGATGA CCCAGTGCTA GGGGAAGACT ATTACAGTGT GGAAAATCCT GCAAACAAAA GAAGGAGTAC CCTCATCACA GTGCTTAATA TATCGGAAAT TGAAAGTAGA TTTTATAAAC ATCCATTTAC CTGTTTTGCC AAGAATACAC ATGGTATAGA TGCAGCATAT ATCCAGTTAA TATATCCAGT CACTAATTTC CAGAAGCACA TGATTGGTAT ATGTGTCACG TTGACAGTCA TAATTGTGTG TTCTGTTTTC ATCTATAAAA TCTTCAAGAT TGACATTGTG CTTTGGTACA GGGATTCCTG CTATGATTTT CTCCCAATAA AAGCTTCAGA TGGAAAGACC TATGACGCAT ATATACTGTA TCCAAAGACT GTTGGGGAAG GGTCTACCTC TGACTGTGAT ATTTTTGTGT TTAAAGTCTT GCCTGAGGTC TTGGAAAAAC AGTGTGGATA TAAGCTGTTC ATTTATGGAA GGGATGACTA CGTTGGGGAA GACATTGTTG AGGTCATTAA TGAAAACGTA AAGAAAAGCA GAAGACTGAT TATCATTTTA GTCAGAGAAA CATCAGGCTT CAGCTGGCTG GGTGGTTCAT CTGAAGAGCA AATAGCCATG TATAATGCTC TTGTTCAGGA TGGAATTAAA GTTGTCCTGC TTGAGCTGGA GAAAATCCAA GACTATGAGA AAATGCCAGA ATCGATTAAA TTCATTAAGC AGAAACATGG GGCTATCCGC TGGTCAGGGG ACTTTACACA GGGACCACAG TCTGCAAAGA CAAGGTTCTG GAAGAATGTC AGGTACCACA TGCCAGTCCA GCGACGGTCA CCTTCATCTA AACACCAGTT ACTGTCACCA GCCACTAAGG AGAAACTGCA AAGAGAGGCT CACGTGCCTC TCGGGTAGCA TGGAGAAGTT GCCAAGAGTT CTTTAGGTGC CTCCTGTCTT ATGGCGTTGC AGGCCAGGTT ATGCCTCATG CTGACTTGCA GAGTTCATGG AATGTAACTA TATCATCCTT TATCCCTGAG GTCACCAGGA ATCAGG-3' (FRAG NO:_)(SEQ ID NO:11889)

5'-GCCACGTGCT GCTGGGTCTC AGTCCTCCAC TTCCCGTGTC CTCTGGAAGT TGTCAGGAGC AATGTTGCGC TTGTACGTGT TGGTAATGGG AGTTTCTGCC TTCACCCTTC AGCCTGCGGC ACACACAGGG GCTGCCAGAA GCTGCCGGTT TCGTGGGAGG CATTACAAGC GGGAGTTCAG GCTGGAAGGG GAGCCTGTAG CCCTGAGGTG CCCCCAGGTG CCCTACTGGT TGTGGGCCTC TGTCAGCCCC CGCATCAACC TGACATGGCA TAAAAATGAC TCTGCTAGGA CGGTCCCAGG AGAAGAAGAG ACACGGATGT GGGCCCAGGA CGGTGCTCTG TGGCTTCTGC CAGCCTTGCA GGAGGACTCT GGCACCTACG TCTGCACTAC TAGAAATGCT TCTTACTGTG ACAAAATGTC CATTGAGCTC AGAGTTTTTG AGAATACAGA TGCTTTCCTG CCGTTCATCT CATACCCGCA AATTTTAACC TTGTCAACCT CTGGGGTATT AGTATGCCCT GACCTGAGTG AATTCACCCG TGACAAAACT GACGTGAAGA TTCAATGGTA CAAGGATTCT CTTCTTTTGG ATAAAGACAA TGAGAAATTT CTAAGTGTGA GGGGGACCAC TCACTTACTC GTACACGATG TGGCCCTGGA AGATGCTGGC TATTACCGCT GTGTCCTGAC ATTTGCCCAT GAAGGCCAGC AATACAACAT CACTAGGAGT ATTGAGCTAC GCATCAAGAA AAAAAAAGAA GAGACCATTC CTGTGATCAT TTCCCCCCTC AAGACCATAT CAGCTTCTCT GGGGTCAAGA CTGACAATCC CGTGTAAGGT GTTTCTGGGA ACCGGCACAC CCTTAACCAC CATGCTGTGG TGGACGGCCA ATGACACCCA CATAGAGAGC GCCTACCCGG GAGGCCGCGT GACCGAGGGG CCACGCCAGG AATATTCAGA AAATAATGAG AACTACATTG AAGTGCCATT GATTTTTGAT CCTGTCACAA GAGAGGATTT GCACATGGAT TTTAAATGTG TTGTCCATAA TACCCTGAGT TTTCAGACAC TACGCACCAC AGTCAAGGAA GCCTCCTCCA CGTTCTCCTG GGGCATTGTG CTGGCCCCAC TTTCACTGGC CTTCTTGGTT TTGGGGGGAA TATGGATGCA CAGACGGTGC AAACACAGAA CTGGAAAAGC AGATGGTCTG ACTGTGCTAT GGCCTCATCA TCAAGACTTT CAATCCTATC CCAAGTGAAA TAAATGGAAT GAAATAATTC AAACACAAAA AAAAAAAAAA AAAAAAAA-3' (FRAG. NO:_)(SEQ ID NO:11887)

5'-GCCGGAGCCG ACTCGGAGCG CGCGGCGCGG CCGGGAGGAG CCGAGCGCGC CGGGCGCGGC GTGGGGGCGC CGGCTGCCCC GCGCGCCCAG GGAGCGGCAG GAATGTGACA ATCGCGCGCC CGCACCGTAG CACTCCTCGC TCGGCTCCTA GGGCTCTCGC CCTCTGAGCT GAGCCGGGTT CCGCCCGGGC TGGGATCCCA TCACCCTCCA CGGCCGTCCG TCCAGGTAGA CGCACCCTCT GAAGATGGTG ACTCCCTCCT GAGAAGCTGG ACCCCTTGGT AAAAGACAAG GCCTTCTCCA AGAAGAATAT GAAAGTGTTA CTCAGACTTA TTTGTTTCAT AGCTCTACTG ATTTCTTCTC TGGAGGCTGA TAAATGCAAG GAACGTGAAG AAAAAATAAT TTTAGTGTCA TCTGCAAATG AAATTGATGT TCGTCCCTGT CCTCTTAACC CAAATGAACA CAAAGGCACT ATAACTTGGT ATAAAGATGA CAGCAAGACA CCTGTATCTA CAGAACAAGC CTCCAGGATT CATCAACACA AAGAGAAACT TTGGTTTGTT CCTGCTAAGG TGGAGGATTC AGGACATTAC TATTGCGTGG TAAGAAATTC ATCTTACTGC CTCAGAATTA AAATAAGTGC AAAATTTGTG GAGAATGAGC CTAACTTATG TTATAATGCA CAAGCCATAT TTAAGCAGAA ACTACCCGTT GCAGGAGACG GAGGACTTGT GTGCCCTTAT ATGGAGTTTT TTAAAAATGA AAATAATGAG TTACCTAAAT TACAGTGGTA TAAGGATTGC AAACCTCTAC TTCTTGACAA TATACACTTT AGTGGAGTCA AAGATAGGCT CATCGTGATG AATGTGGCTG AAAAGCATAG AGGGAACTAT ACTTGTCATG CATCCTACAC ATACTTGGGC AAGCAATATC CTATTACCCG GGTAATAGAA TTTATTACTC TAGAGGAAAA CAAACCCACA AGGCCTGTGA TTGTGAGCCC AGCTAATGAG ACAATGGAAG TAGACTTGGG ATCCCAGATA CAATTGATCT GTAATGTCAC CGGCCAGTTG AGTGACATTG CTTACTGGAA GTGGAATGGG TCAGTAATTG ATGAAGATGA CCCAGTGCTA GGGGAAGACT ATTACAGTGT GGAAAATCCT GCAAACAAAA GAAGGAGTAC CCTCATCACA GTGCTTAATA TATCGGAAAT TGAAAGTAGA TTTTATAAAC ATCCATTTAC CTGTTTTGCC AAGAATACAC ATGGTATAGA TGCAGCATAT ATCCAGTTAA TATATCCAGT CACTAATTTC CAGAAGCACA TGATTGGTAT ATGTGTCACG TTGACAGTCA TAATTGTGTG TTCTGTTTTC ATCTATAAAA TCTTCAAGAT TGACATTGTG CTTTGGTACA GGGATTCCTG CTATGATTTT CTCCCAATAA AAGCTTCAGA TGGAAAGACC TATGACGCAT ATATACTGTA TCCAAAGACT GTTGGGGAAG GGTCTACCTC TGACTGTGAT ATTTTTGTGT TTAAAGTCTT GCCTGAGGTC TTGGAAAAAC AGTGTGGATA TAAGCTGTTC ATTTATGGAA GGGATGACTA CGTTGGGGAA GACATTGTTG AGGTCATTAA TGAAAACGTA AAGAAAAGCA GAAGACTGAT TATCATTTTA GTCAGAGAAA CATCAGGCTT CAGCTGGCTG GGTGGTTCAT CTGAAGAGCA AATAGCCATG TATAATGCTC TTGTTCAGGA TGGAATTAAA GTTGTCCTGC TTGAGCTGGA GAAAATCCAA GACTATGAGA AAATGCCAGA ATCGATTAAA TTCATTAAGC AGAAACATGG GGCTATCCGC TGGTCAGGGG ACTTTACACA GGGACCACAG TCTGCAAAGA CAAGGTTCTG GAAGAATGTC AGGTACCACA TGCCAGTCCA GCGACGGTCA CCTTCATCTA AACACCAGTT ACTGTCACCA GCCACTAAGG AGAAACTGCA AAGAGAGGCT CACGTGCCTC TCGGGTAGCA TGGAGAAGTT GCCAAGAGTT CTTTAGGTGC CTCCTGTCTT ATGGCGTTGC AGGCCAGGTT ATGCCTCATG CTGACTTGCA GAGTTCATGG AATGTAACTA TATCATCCTT TATCCCTGAG GTCACCAGGA ATCAGG-3' (FRAG. NO:_)(SEQ ID NO:11888)

__Human Interleukin-8 Fragments Antisense Oligonucleotide Fragments__

5'-GBTGTTTGTT BCCBBBGCBT CBBGBBTBGC TTTGCTBTCT BBGGTBCBCB TTTBGBCBTB GGBBBBCGCT GTBGGTCBGBB BGBTGTGCTT BCCTTCBCBC BGBGCTGCBG BBBTCBGGBBG CTGCCBBGBGBG CCBCGGCCBGC TTGGBGTCBT GTTTBCBCBC BGTGBGGTGC TCCGGTGGCT TTTTGCTTGT GTGCTCTGCT GTCTCTG TTC CTTCCGGTGG TTTCTTCCTG GCTCTTGTCC TTTCTCTTGG CCCTTGGCCC-3' (FRAG. NO:1834) (SEQ ID NO:11216)

5'-G CTC CGG-3' (FRAG. NO:1835) (SEQ ID NO:11217)

5'-CBBGBBTBGC-3' (FRAG. NO:1836) (SEQ ID NO:11218)

5'-CBCBC BGTGBGGTGC-3' (FRAG. NO:1837) (SEQ ID NO:11219)

5'-BCCBBBGCBT CBBGBBTBGC-3' (FRAG. NO:1838) (SEQ ID NO:11220)

5'-GCCBBGBGBG CCBCGGCCBGC-3' (FRAG. NO:1839) (SEQ ID NO:11221)

5'-GTG CTC CGG TGG CTT TTT-3' (FRAG. NO:1289)(SEQ ID NO:10667)

5'-GCT TGT GTG CTC TGC TGT CTC TG-3' (FRAG. NO:1290)(SEQ ID NO:10668)

5'-TTC CTT CCG GTG GTT TCT TCC TGG CTC TTG TCC T-3' (FRAG. NO:1291)(SEQ ID NO:10669)

5'-TTC TCT TGG CCC TTG GCC C-3' (FRAG. NO:1292)(SEQ ID NO:10670)

5'-GBTGTTTGTT BCCBBBGCBT CBBGBBTBGC TTTGCTBTCT BBGGBTCBCB TTTBGBCBTB GGBBBBCGCT GTBGGTCBGBB BGBTGTGCTT BCCTTCBCBC BGBGCTGCBG BBBTCBGGBBGG CTGCCBBGBGBG CCBCGGCCBGC TTGGBGTCBT GTTTBCBCBC BGTGBGGTGC TCCGGTGGCT TTTTGCTTGT-3' (FRAG. NO:1840) (SEQ ID NO:11222)

Human IL-8 Receptor Alpha Antisense Oligonucleotide Fragments

5'-ACAGGGGCTG TAATCTTCATC TGCAGGTGGC ATGCCAGTGA AATTTAGATC ATCAAAATCC CACATCTGTG GATCTGTAAT ATTTGACATG TCCTCTTCAG TTTCAGCAAT GGTTTGATCT AACTGAAGCA CCGGCCAGGB CBGGGGCTGT BBTCTTCBTC TGCBGGTGGC BTGCCBGTGB BBTTTBGBTC BTCBBBBTCC CBCBTCTGTG GBTCTGTBBT BTTTGBCBTG TCCTCTTCBG TTTCBGCBB TGGTTTGBTC TBBCTGBBGC BCCGGCCBGG TGGCTCGGTG CTTCTGCCCC TGTTGTTGCG GCGCTCGGTT GGTGTGGCCC CTGTGGTGCT TCGTTTCCCC CTCTTTCTCT TTGTTCGGGG GTTCTTGTGG CGGGCTGCTT GTCTCGTTCC-3'(FRAG.NO:1841)(SEQ ID NO:11223)

5'-CBGGGGC-3' (FRAG. NO:1842) (SEQ ID NO:11224)

5'-GCBGGTGGC-3' (FRAG. NO:1843) (SEQ ID NO:11225)

5'-GCGGCGCTC-3' (FRAG. NO:1844) (SEQ ID NO:11226)

5'-TGGCTCGGTGCTTCTGCCCC (FRAG. NO:1293)(SEQ ID NO:10671)

5'-TGTTGTTGCGGCGCTC (FRAG. NO:1294)(SEQ ID NO:10672)

5'-GGTTGGTGTGGCCCCTG (FRAG. NO:1295)(SEQ ID NO:10673)

5'-TGGTGCTTCGTTTCC (FRAG. NO:1296)(SEQ ID NO:10674)

5'-CCCTCTTTCTCTTTGTTC (FRAG. NO:1297)(SEQ ID NO:10675)

5'-GGGGGTTCTTGTGGC (FRAG. NO:1298)(SEQ ID NO:10676)

5'-GGGCTGCTTGTCTCGTTCC (FRAG. NO:1299)(SEQ ID NO:10677)

5'-ACAGGGGCTG TAATCTTCATC TGCAGGTGGC ATGCCAGTGA AATTTAGATC ATCAAAATCC CACATCTGTG GATCTGTAAT ATTTGACATG TCCTCTTCAG TTTCAGCAAT GGTTTGATCT AACTGAAGCA CCGGCCAGG-3' (FRAG. NO:1845) (SEQ ID NO:11227)

5'-B CBGGGGCTGT BBTCTTCBTC TGCBGGTGGC BTGCCBGTGB BBTTTBGBTC BTCBBBBTCC CBCBTCTGTG GBTCTGTBBT BTTTGBCBTG TCCTCTTCBG TTTCBGCBB TGGTTTGBTC TBBCTGBBGC BCCGGCCBGG-3' (FRAG. NO:1846) (SEQ ID NO:11228)

Interleukin-11 (IL-11) Nucleic Acid and Antisnese Oligonucleotide Fragments

5'-*GCTCAGGGCA CATGCCTCCC CTCCCCAGGC CGCGGCCCAG CTGACCCTCG GGGCTCCCCC GGCAGCGGAC AGGGAAGGGT* TAAAGGCCCC CGGCTCCCTG CCCCCTGCCC TGGGGAACCC CTGGCCCTGT GGGGACATGA ACTGTGTTTG CCGCCTGGTC CTGGTCGTGC TGAGCCTGTG GCCAGATACA GCTGTCGCCC CTGGGCCACC ACCTGGCCCC CCTCGAGTTT CCCCAGACCC TCGGGCCGAG CTGGACAGCA CCGTGCTCCT GACCCGCTCT CTCCTGGCGG ACACGCGGCA GCTGGCTGCA CAGCTGAGGG ACAAATTCCC AGCTGACGGG GACCACAACC TGGATTCCCT GCCCACCCTG GCCATGAGTG CGGGGGCACT GGGAGCTCTA CAGCTCCCAG GTGTGCTGAC AAGGCTGCGA GCGGACCTAC TGTCCTACCT GCGGCACGTG CAGTGGCTGC GCCGGGCAGG TGGCTCTTCC CTGAAGACCC TGGAGCCCGA GCTGGGCACC CTGCAGGCCC GACTGGACCG GCTGCTGCGC CGGCTGCAGC TCCTGATGTC CCGCCTGGCC CTGCCCCAGC CACCCCCGGA CCCGCCGGCG CCCCCGCTGG CGCCCCCCTC CTCAGCCTGG GGGGGCATCA GGGCCGCCCA CGCCATCCTG GGGGGGCTGC ACCTGACACT TGACTGGGCC GTGAGGGGAC TGCTGCTGCT GAAGACTCGG *CTGTGACCCG GGGCCCAAAG CCACCACCGT CCTTCCAAAG CCAGATCTTA TTTATTTATT TATTTCAGTA* CTGGGGGCGA AACAGCCAGG TGATCCCCCC GCCATTATCT CCCCCTAGTT AGAGACAGTC CTTCCGTGAG GCCTGGGGGA CATCTGTGCC TTATTTATAC TTATTTATTT CAGGAGCAGG GGTGGGAGGC AGGTGGACTC CTGGGTCCCC GAGGAGGAGG GGACTGGGGT CCCGGATTCT TGGGTCTCCA AGAAGTCTGT CCACAGACTT CTGCCCTGGC TCTTCCCCAT CTAGGCCTGG GCAGGAACAT ATATTATTTA TTTAAGCAAT TACTTTTCAT GTTGGGGTGG GGACGGAGGG GAAAGGGAAG CCTGGGTTTT TGTACAAAAA TGTGAGAAAC CTTTGTGAGA CAGAGAACAG GGAATTAAAT GTGTCATACA TATCC CAGCTGCGGC ATCCTCTGTC TCAGAGTCTT GGTGTCTCTG TTCCTTTCCC CTCGGGGTCT CCCTGGGTCT CCCCAAGTCC CTCCTGCTGT CTTCCTCCCG CTCTCTGATC TCTGACTCCC AGAACCTCTC CCTCTGTCTC CAGGGCTGCC CCTCTGATCC TCTTTGCTTC TCTGGTGTGT CTCTCTGGCT GCCTCCATCT CTGTGGATCT CCGTCTCCCT GTCTCTGTCT CAGTCTGTCC TTCACTCTGT GTGTGTGTGT GTCTCTCTCT CTCTCTCTCC *TTCCCTTCCA* CTCCCTCTTC CTCCTGCCTC CACCTCTCCA GGCCCCTGTC TTGTCCCTCC GTCCGGCCTT TCTCTGCCTT TCCGTCCTCC TGCCTCCCCA TCTCTCTCTG CTAGTCCTGT CCAGCCGGAC CCCCACCCAC AGTCGGGCCC CAGCGCTTGA GCCTGAGTGT CTGCTCCGGC CCGTGGAGGT GGAGGGAGGG GACGCCAATG ACCTCACCAG CCCCTCTCCG ACCACCCCCC CCTTTCCCTT TTCAACTTTT CCAACTTTTC CTTCCGTGCC CTCCTCCGAG CGCGGCGGCG TGAGCCCTGC AAGGCAGCCG CTCCGTCTGA ATGGAAAAGG CAGGCAGGGA GGGTGAGTCA GGATGTGTCA GGCCGGCCCT CCCCTGCCGC CTGCCCCCCG CCCGCCCGCC CCAGGCCCCC TATATAACCC CCCAGGCGTC CACACTCCCT CACTGCCGCG GGCCCTGCTG CTCAGGGCAC ATGCCTCCCC TCCCCAGCCG CGGGCCCAGC TGACCCTCGG GGCTCCCCCG GCAGCGGACA GGGAAGGGTT AAAGGCCCCC GGCTCCCTGC CCCCTGCCCT GGGGAACCCC TGGCCCTGTG GGGACATGAA CTGTAAGTTG GTTCATGGGG AGGGTGGAGG GGACAGGGAG GCAGGGAGGA GAGGGACCCA CGGCGGGGGT GGGAGCAGAC CCCGCTGAGT CGCACAGAGA GGGACCCGGA GACAGGCAGC CGGGGAGGAG AGCAGCTTCG GAGACAGGAG GCGGCGGAGG AGATGGGCAG AGAGAGACAC AGACAGGAGC GGATGGAGGC AGCCAATCAG AGGCGCCGCA GGAGGGACGG GCCAGACAGG GCCCGAGAGG AGCGAGACGC GAGACCGAGC AGGGGCAGGG ACGCAGGGAC TGGTGCCGGG AGGGAGGTGA CCCCCATCGA CCCAGGCCCC AGGGAGCCCG CGGGGACCGG GAGACTCCCT GGGATTCCGG CAGAGAGGCT CCGGAGGGAA ACTGAGGCAG GGTCCGCGGA GAGCGGAGCA AGCCAGGGAG TAGCGACCCC AGCCGGGGGG AGGAGAGAGA CTGGGCGCCG GGGGAAAGCG GGGAGAGCCG GGCAGATGCG GCCGACGGAG GCGCGGACAG ACCGACGGCT GGCGGGCCCG GGGGGCGGGC TGGGGGTGTG CGAGGCGCGG GCGGCCGGGG AGCGCTGATT GGCTGGCGGG TGGCCGGGTG GGCGGGGCGG CCGGGGTGGG CTGCGGGGAG CGAGCTCCGG ACCCCCGCGC CCCCGGCGCC CCCCGCGCCC CCCGCCGCCA GCTCTCCCGC TCCCGGCGCC CGGCCGGGCC ATGGCTCTGC CCCTCTCCGC CCAGGTGCGC TGCGGCCCGG GCTTCTGCCG CCCACCCGGC GGGCTCCTGG GAGGGCGTCT AAGGGGTCTC CCGTGGGAGA GGTCCGTGTC TCCCGGACTC CGTCCTGGGC TTTTGGCTCC TTCCCCTGCT CCCAGCCAGC TCGGGCTCCC GCGGCCCGGG GAGGGGGCAG GTTCTGGCCT GTGCCTCCCC CACCATCCGC GCCCCGGGGC CCAGATTCCG GCGTCCGGGG GCGGACGGGA GACGCCCGGG CCGCGTCTGC TCCGACGGGC GGGGCAGCCA GAGCCAGGGA GGGAGAGGGA AGCCCGCCTG GCCCTGCGAC CTGCCCGCGG GCGTTCCACC CTGGGACTTA AGACCTCCAG CTCCATCCTC CCTAAGGCCG GGAGTCCAGG CCCCAGACCC TCCTCCCCGA GACCCAGGAG TCCAGACCCC AGGCCTTCCT CCCTCAGACC TAGGAGTCCA GGCCCCCAGC CTCTCCTCCC TCAGACCCAG GAGGAGTCCA GACCCCAGTT CCTCCTCCCT CAGACCCGGG AGTCCAGCCC AGGCCCTCCT CTCTCAGACC CGGAGTCCAG CCTGAGCTCT CTGCCTTATC CTGCCCCCAG GTGTTTGCCG CCTGGTCCTG GTCGTGCTGA GCCTGTGGCC AGATACAGCT GTCGCCCCTG GGCCACCACC TGGCCCCCCT CGAGTTTCCC CAGACCCTCG GGCCGAGCTG GACAGCACCG TGCTCCTGAC CCGCTCTCTC CTGGCGGACA CGCGGCAGCT GGCTGCACAG CTGGTAGGAG AGACTGGGCT GGGGCCAGCA CAGGAGTGAG AGGCAGAGAG GAACGGAGAG GAGTCTGCGG GCAGCCACTT GGAGGGGTTC TGGGCTCTCA GGTGGCAGAG TGAGGGAGGG GAAGAGTTGG GGGCCTGGCG TGGGGGATGG AGGGAGCCCC GAGGCTGGGC AGGGGCCACC TCACAGCTTT TTTCCCTGCC AGAGGGACAA ATTCCCAGCT GACGGGGACC ACAACCTGGA TTCCCTGCCC ACCCTGGCCA TGAGTGCAGG GGCACTGGGA GCTCTACAGG TAAGGGCAAG GGAGTGGGCT GGGGACAAGG TGGGAGGCAG GCAGTGAAGG GGGCGGGGAG GATGAGGGGC ACTGGTCGGG TGTTCTCTGA TGTCCCGGCT CTATCCCCAG CTCCCAGGTG

TGCTGACAAG GCTGCGAGCG GACCTACTGT CCTACCTGCG GCACGTGCAG TGGCTGCGCC GGGCAGGTGG CTCTTCCCTG
AAGACCCTGG AGCCCGAGCT GGGCACCCTG CAGGCCCGAC TGGACCGGCT GCTGCGCCGG CTGCAGCTCC TGGTATGTCC
TGGCCCCAAG ACCTGACACC CCAGACCCCC ACCCCTGGCC CCAAAATCCT GTGGCCTGAG TCCTTGAAGC CTGAGACCCC
AGACCCGAGT GCAACAGCCC CGCTCTGAGA CCCTGACACC CTAACAGCCC GCTCTGAGAC CCTGACACCG TAACAGCCCC
GCTCTGAGAC CCTGACCCTA ACAGTCCTGC TCTGAGACCC TGACCCTGCA GTCCCAAGAT CCTGTGGCCC TGAGACCCTG
AGGCCCTAGA CCCCCAAATC CTGCCCAGAA ACTTCAAATT CTCACCCAAG ACCCTGAGAC TCCATCATCC ATGACCTCAA
AGTCCCCAGA TCCCAGCCCC TAAGACCCAA GACCCCATCC TGAAGCCCAA AGCCTTGAGA ATTCAAATCC TCACCTCAAG
ACTTGGAGAC CCTGGCCCCA TGACATTGAA AACCATGGAC CTGGCCAGGC GTGGTGGCTC ACGCCTGTAA TCCCAGCACT
TTGGGAGGCC GAGGCAAGTG GATCACCTGA GGTCGGGAGT TCAAGACCAG CCAGACCAAC ATGGTGAAAC CCTGTCTCTA
CTAAAAATAC AAAATTAGCC AGGCGTGGTG GTGCATGCCT GTAATCCCAG CTACTTGGGA GGCTGAGGCA GGAGAATCGC
TTGAACCTGG GAGGCGGAGG TTGCAGTGAG CCGAGATCGC ACCATTACAC TCCAGCCTGG GCAACAAGAG CAAAACTCCC
TCTCTCTCAA AAAAAAAAAA AAAAAAAAAA AAGAAGGAAA AGAAAACCAT GGACCTCCAG ACCCTGAGAC CCCAGGCCCC
AGCCCTGAGA TCCTGACATC TTAAAGATCC CAGGCCCTAA GATACAAGAC CTTGACCCAA AGCCAGCCTT GGGACCCTGG
CTGTACAAAC CCAAGACCTC CAGGACCTAG ACCCCGAGCC CTGAGGCCCT ATGTCTCACT CCCAACATCG AAAACCCTGA
CACCTCAGAT CCTGAGCCTG CGCCTGTACG ACTCCAAGAC CCTCACTTCC AAAGCCAGGC CCAAAGCCCT GAGACCAGAA
GACTTCAAAC CCTGGTTCTT GGGCCTAACT CCAAAGACCC TGGATCTCAA ATTCCAACTT CTAGCTCTGA GACTCCAGCC
CTCACCCATG AGTTCCTGAA CTTGAACCCA GAGACCCCAT CTCTAAGACT TCAGCCTTGA GATCCAGGGC CTGACCCTAG
ACTCGAGCCC ACAGACCTCA GATACTGTCT GTAAAACCCC AGCTCTGGTG GGGAGCAGTG GCTCACTCCT GTAATCCCAA
GGCAGGGGAG GCCAAGGCAG AAGGACCTCT TGAGGCCATG AGTTTGAGAC AGCCTGGGCA GCATAGCAAG ACTCTGTTTC
TTAATTATTA TTATTATTAT TATTTTTTGG AGACAGAGTC TCGCGCTCTG TTGCCCAGGC TAGAGTGCAA TGGTGCCATT
TCGGCTTGCT GGAACCTCCG CCTCCTGGGC TCAAGCGATT CTCCTGCCTC AGCCTCCTGA GTAGCTGGGA CTTCAGGTGC
ACACTGCCAC ACCCGGATAA TTTTTTTGTA TTTTAGTAGA CACAGGGTTT CACCGTGTTG CCCAGGCTGG TCACAAACTC
CTGAGCTCAG GCCATCCGCC CGCCTCGGCC TCCCAAAGCG CTGGGATAAC AGGCGTGACG CCGCGCCTGG CTTCTTAATT
GTTCTAACAG CAGCGACAAC AACAAAAACC CAGCTCTGAG ATTCCAGCCC CGGCGACTCT AACAGTCCCA GGCCCGATCC
CTCACCTAGA ACCGAGATGC CAGCCCTGAC TCCACAGACT TCACCCCCAA CCCCCACACT CAGCTCTGGA AGCCCGTCCT
GACTCCAGCC TCCATTTTCG GAACCCCACA GCCTGAAGAG CTCCCGGCCT AAACACTTCA CCCCACGCGC CACAGTCCCC
CTGTGAATAT GCAGCCCCGA TTCAGCTGCA GCTCCACAGC ACCCCTGCCC TGCACCCCCG CTGCACCCCC TACCTGTGAC
TCACCTCTCT CCTCTCCCCA CAGATGTCCC GCCTGGCCCT GCCCCAGCCA CCCCCGGACC CGCCGGCGCC CCCGCTGGCG
CCCCCCTCCT CAGCCTGGGG GGGCATCAGG GCCGCCCACG CCATCCTGGG GGGGCTGCAC CTGACACTTG ACTGGGCCGT
GAGGGGACTG CTGCTGCTGA AGACTCGGCT GTGACCCGGG GCCCAAAGCC ACCACCGTCC TTCCAAAGCC AGATCTTATT
TATTTATTTA TTTCAGTACT GGGGGCGAAA CAGCCAGGTG ATCCCCCCGC CATTATCTCC CCCTAGTTAG AGACAGTCCT
TCCGTGAGGC CTGGGGGGCA TCTGTGCCTT ATTTATACTT ATTTATTTCA GGAGCAGGGG TGGGAGGCAG GTGGACTCCT
GGGTCCCCGA GGAGGAGGGG ACTGGGGTCC CGGATTCTTG GGTCTCCAAG AAGTCTGTCC ACAGACTTCT GCCCTGGCTC
TTCCCCATCT AGGCCTGGGC AGGAACATAT ATTATTTATT TAAGCAATTA CTTTTCATGT TGGGGTGGGG ACGGAGGGGA
AAGGGAAGCC TGGGTTTTTG TACAAAAATG TGAGAAACCT TTGTGAGACA GAGAACAGGG AATTAAATGT GTCATACATA
TCCACTTGAG GGCGATTTGT CTGAGAGCTG GGGCTGGATG CTTGGGTAAC TGGGGCAGGG CAGGTGGAGG GGAGACCTCC
ATTCAGGTGG AGGTCCCGAG TGGGCGGGGC AGCGACTGGG AGATGGGTCG GTCACCCAGA CAGCTCTGTG GAGGCAGGGT
CTGAGCCTTG CCTGGGGCCC CGCACTGCAT AGGGCCGTTT GTTTGTTTTT TGAGATGGAG TCTCGCTCTG TTGCCTAGGC
TGGAGTGCAG TGAGGCAATC TAAGGTCACT GCAACCTCCA CCTCCCGGGT TCAAGCAATT CTCCTGCCTC AGCCTCCCGA
TTAGCTGGGA TCACAGGTGT GCACCACCAT GCCCAGCTAA TTATTTATTT CTTTTGTATT TTTAGTAGAG ACAGGGTTTC
ACCATGTTGG CCAGGCTGGT TTCGAACTCC TGACCTCAGG TGATCCTCCT GCCTCGGCCT CCCAAAGTGC TGGGATTACA
GGTGTGAGCC ACCACACCTG ACCCATAGGT CTTCAATAAA TATTTAATGG AAGGTTCCAC AAGTCACCCT GTGATCAACA
GTACCCGTAT GGGACAAAGC TGCAAGGTCA AGATGGTTCA TTATGGCTGT GTTCACCATA GCAAACTGGA AACAATCTAG
ATATCCAACA GTGAGGGTTA AGCAACATGG TGCATCTGTG GATAGAACGC CACCCAGCCG CCCGGAGCAG GGACTGTCAT
TCAGGGAGGC TAAGGAGAGA GGCTTGCTTG GGATATAGAA AGATATCCTG ACATTGGCCA GGCATGGTGG CTCACGCCTG
TAATCCTGGC ACTTTGGGAG GACGAAGCGA GTGGATCACT GAAGTCCAAG AGTTTGAGAC CGGCCTGCGA GACATGGCAA
AACCCTGTCT CAAAAAAGAA AGAATGATGT CCTGACATGA AACAGCAGGC TACAAAACCA CTGCATGCTG TGATCCCAAT
TTTGTGTTTT TCTTTCTATA TATGGATTAA AACAAAAATC CTAAAGGGAA ATACGCCAAA ATGTTGACAA TGACTGTCTC
CAGGTCAAAG GAGAGAGGTG GGATTGTGGG TGACTTTTAA TGTGTATGAT TGTCTGTATT TTACAGAATT TCTGCCATGA
CTGTGTATTT TGCATGACAC ATTTTAAAAA TAATAAACAC TATTTTTAGA ATAACAGAAT ATCAGCCTCC TCCTCTCCAA
AAATAAGCCC TCAGGAGGGG ACAAAGTTGA CCGCTGATTG AGCCTGTCAG GGCTGTGCAC-3' (FRAG. NO:_)(SEQ ID NO:11892)

5'-GCTCAGGGCA CATGCCTCCC CTCCCCAGGC CGCGGCCCAG CTGACCCTCG GGGCTCCCCC GGCAGCGGAC AGGGAAGGGT
TAAAGGCCCC CGGCTCCCTG CCCCCTGCCC TGGGGAACCC CTGGCCCTGT GGGGACATGA ACTGTGTTTG CCGCCTGGTC
CTGGTCGTGC TGAGCCTGTG GCCAGATACA GCTGTCGCCC CTGGGCCACC ACCTGGCCCC CCTCGAGTTT CCCCAGACCC
TCGGGCCGAG CTGGACAGCA CCGTGCTCCT GACCCGCTCT CTCCTGGCGG ACACGCGGCA GCTGGCTGCA CAGCTGAGGG
ACAAATTCCC AGCTGACGGG GACCACAACC TGGATTCCCT GCCCACCCTG GCCATGAGTG CGGGGGCACT GGGAGCTCTA
CAGCTCCCAG GTGTGCTGAC AAGGCTGCGA GCGGACCTAC TGTCCTACCT GCGGCACGTG CAGTGGCTGC GCCGGGCAGG
TGGCTCTTCC CTGAAGACCC TGGAGCCCGA GCTGGGCACC CTGCAGGCCC GACTGGACCG GCTGCTGCGC CGGCTGCAGC
TCCTGATGTC CCGCCTGGCC CTGCCCCAGC CACCCCCGGA CCCGCCGGCG CCCCCGCTGG CGCCCCCCTC CTCAGCCTGG
GGGGGCATCA GGGCCGCCCA CGCCATCCTG GGGGGGCTGC ACCTGACACT TGACTGGGCC GTGAGGGGAC TGCTGCTGCT
GAAGACTCGG CTGTGACCCG GGGCCCAAAG CCACCACCGT CCTTCCAAAG CCAGATCTTA TTTATTTATT TATTTCAGTA
CTGGGGGCGA AACAGCCAGG TGATCCCCCC GCCATTATCT CCCCCTAGTT AGAGACAGTC CTTCCGTGAG GCCTGGGGGA
CATCTGTGCC TTATTTATAC TTATTTATTT CAGGAGCAGG GGTGGGAGGC AGGTGGACTC CTGGGTCCCC GAGGAGGAGG
GGACTGGGGT CCCGGATTCT TGGGTCTCCA AGAAGTCTGT CCACAGACTT CTGCCCTGGC TCTTCCCCAT CTAGGCCTGG
GCAGGAACAT ATATTATTTA TTTAAGCAAT TACTTTTCAT GTTGGGGTGG GGACGGAGGG GAAAGGGAAG CCTGGGTTTT
TGTACAAAAA TGTGAGAAAC CTTTGTGAGA CAGAGAACAG GGAATTAAAT GTGTCATACA TATCC-3' (FRAG. NO:_)(SEQ ID NO:11890)

5'-CAGCTGCGGC ATCCTCTGTC TCAGAGTCTT GGTGTCTCTG TTCCTTTCCC CTCGGGGTCT CCCTGGGTCT CCCCAAGTCC
CTCCTGCTGT CTTCCTCCCG CTCTCTGATC TCTGACTCCC AGAACCTCTC CCTCTGTCTC CAGGGCTGCC CCTCTGATCC
TCTTTGCTTC TCTGGTGTGT CTCTCTGGCT GCCTCCATCT CTGTGGATCT CCGTCTCCCT GTCTCTGTCT CAGTCTGTCC
TTCACTCTGT GTGTGTGTGT GTCTCTCTCT CTCTCTCTCC TTCCCTTCCA CTCCCTCTTC CTCCTGCCTC CACCTCTCCA
GGCCCCTGTC TTGTCCCTCC GTCCGGCCTT TCTCTGCCTT TCCGTCCTCC TGCCTCCCCA TCTCTCTCTG CTAGTCCTGT
CCAGCCGGAC CCCCACCCAC AGTCGGGCCC CAGCGCTTGA GCCTGAGTGT CTGCTCCGGC CCGTGGAGGT GGAGGGAGGG
GACGCCAATG ACCTCACCAG CCCCTCTCCG ACCACCCCCC CCTTTCCCTT TTCAACTTTT CCAACTTTTC CTTCCGTGCC
CTCCTCCGAG CGCGGCGGCG TGAGCCCTGC AAGGCAGCCG CTCCGTCTGA ATGGAAAAGG CAGGCAGGGA GGGTGAGTCA

GGATGTGTCA GGCCGGCCCT CCCCTGCCGC CTGCCCCCCG CCCGCCCGCC CCAGGCCCCC TATATAACCC CCCAGGCGTC
CACACTCCCT CACTGCCGCG GGCCCTGCTG CTCAGGGCAC ATGCCTCCCC TCCCCAGCCG CGGGCCCAGC TGACCCTCGG
GGCTCCCCCG GCAGCGGACA GGGAAGGGTT AAAGGCCCCC GGCTCCCTGC CCCCTGCCCT GGGGAACCCC TGGCCCTGTG
GGGACATGAA CTGTAAGTTG GTTCATGGGG AGGGTGGAGG GGACAGGGAG GCAGGGAGGA GAGGGACCCA CGGCGGGGGT
GGGAGCAGAC CCCGCTGAGT CGCACAGAGA GGGACCCGGA GACAGGCAGC CGGGGAGGAG AGCAGCTTCG GAGACAGGAG
GCGGCGGAGG AGATGGGCAG AGAGAGACAC AGACAGGAGC GGATGGAGGC AGCCAATCAG AGGCGCCGCA GGAGGGACGG
GCCAGACAGG GCCCGAGAGG AGCGAGACGC GAGACCGAGC AGGGGCAGGG ACGCAGGGAC TGGTGCCGGG AGGGAGGTGA
CCCCCATCGA CCCAGGCCCC AGGGAGCCCG CGGGGACCGG GAGACTCCCT GGGATTCCGG CAGAGAGGCT CCGGAGGGAA
ACTGAGGCAG GGTCCGCGGA GAGCGGAGCA AGCCAGGGAG TAGCGACCCC AGCCGGGGGG AGGAGAGAGA CTGGGCGCCG
GGGGAAAGCG GGGAGAGCCG GGCAGATGCG GCCGACGGAG GCGCGGACAG ACCGACGGCT GGCGGGCCCG GGGGGCGGGC
TGGGGGTGTG CGAGGCGCGG GCGGCCGGGG AGCGCTGATT GGCTGGCGGG TGGCCGGGTG GGCGGGGCGG CCGGGGTGGG
CTGCGGGGAG CGAGCTCCGG ACCCCCGCGC CCCCGGCGCC CCCCGCGCCC CCCGCCGCCA GCTCTCCCGC TCCCGGCGCC
CGGCCGGGCC ATGGCTCTGC CCCTCTCCGC CCAGGTGCGC TGCGGCCCGG GCTTCTGCCG CCCACCCGGC GGGCTCCTGG
GAGGGCGTCT AAGGGGTCTC CCGTGGGAGA GGTCCGTGTC TCCCGGACTC CGTCCTGGGC TTTTGGCTCC TTCCCCTGCT
CCCAGCCAGC TCGGGCTCCC GCGGCCCGGG GAGGGGGCAG GTTCTGGCCT GTGCCTCCCC CACCATCCGC GCCCCGGGGC
CCAGATTCCG GCGTCCGGGG GCGGACGGGA GACGCCCGGG CCGCGTCTGC TCCGACGGGC GGGGCAGCCA GAGCCAGGGA
GGGAGAGGGA AGCCCGCCTG GCCCTGCGAC CTGCCCGCGG GCGTTCCACC CTGGGACTTA AGACCTCCAG CTCCATCCTC
CCTAAGGCCG GGAGTCCAGG CCCCAGACCC TCCTCCCCGA GACCCAGGAG TCCAGACCCC AGGCCTTCCT CCCTCAGACC
TAGGAGTCCA GGCCCCCAGC CTCTCCTCCC TCAGACCCAG GAGGAGTCCA GACCCCAGTT CCTCCTCCCT CAGACCCGGG
AGTCCAGCCC AGGCCCTCCT CTCTCAGACC CGGAGTCCAG CCTGAGCTCT CTGCCTTATC CTGCCCCCAG GTGTTTGCCG
CCTGGTCCTG GTCGTGCTGA GCCTGTGGCC AGATACAGCT GTCGCCCCTG GGCCACCACC TGGCCCCCCT CGAGTTTCCC
CAGACCCTCG GGCCGAGCTG GACAGCACCG TGCTCCTGAC CCGCTCTCTC CTGGCGGACA CGCGGCAGCT GGCTGCACAG
CTGGTAGGAG AGACTGGGCT GGGGCCAGCA CAGGAGTGAG AGGCAGAGAG GAACGGAGAG GAGTCTGCGG GCAGCCACTT
GGAGGGGTTC TGGGCTCTCA GGTGGCAGAG TGAGGGAGGG GAAGAGTTGG GGGCCTGGCG TGGGGGATGG AGGGAGCCCC
GAGGCTGGGC AGGGGCCACC TCACAGCTTT TTTCCCTGCC AGAGGGACAA ATTCCCAGCT GACGGGGACC ACAACCTGGA
TTCCCTGCCC ACCCTGGCCA TGAGTGCAGG GGCACTGGGA GCTCTACAGG TAAGGGCAAG GGAGTGGGCT GGGGACAAGG
TGGGAGGCAG GCAGTGAAGG GGGCGGGGAG GATGAGGGGC ACTGGTCGGG TGTTCTCTGA TGTCCCGGCT CTATCCCCAG
CTCCCAGGTG TGCTGACAAG GCTGCGAGCG GACCTACTGT CCTACCTGCG GCACGTGCAG TGGCTGCGCC GGGCAGGTGG
CTCTTCCCTG AAGACCCTGG AGCCCGAGCT GGGCACCCTG CAGGCCCGAC TGGACCGGCT GCTGCGCCGG CTGCAGCTCC
TGGTATGTCC TGGCCCCAAG ACCTGACACC CCAGACCCCC ACCCCTGGCC CCAAAATCCT GTGGCCTGAG TCCTTGAAGC
CTGAGACCCC AGACCCGAGT GCAACAGCCC CGCTCTGAGA CCCTGACACC CTAACAGCCC GCTCTGAGAC CCTGACACCG
TAACAGCCCC GCTCTGAGAC CCTGACCCTA ACAGTCCTGC TCTGAGACCC TGACCCTGCA GTCCCAAGAT CCTGTGGCCC
TGAGACCCTG AGGCCCTAGA CCCCCAAATC CTGCCCAGAA ACTTCAAATT CTCACCCAAG ACCCTGAGAC TCCATCATCC
ATGACCTCAA AGTCCCCAGA TCCCAGCCCC TAAGACCCAA GACCCCATCC TGAAGCCCAA AGCCTTGAGA ATTCAAATCC
TCACCTCAAG ACTTGGAGAC CCTGGCCCCA TGACATTGAA AACCATGGAC CTGGCCAGGC GTGGTGGCTC ACGCCTGTAA
TCCCAGCACT TTGGGAGGCC GAGGCAAGTG GATCACCTGA GGTCGGGAGT TCAAGACCAG CCAGACCAAC ATGGTGAAAC
CCTGTCTCTA CTAAAAATAC AAAATTAGCC AGGCGTGGTG GTGCATGCCT GTAATCCCAG CTACTTGGGA GGCTGAGGCA
GGAGAATCGC TTGAACCTGG GAGGCGGAGG TTGCAGTGAG CCGAGATCGC ACCATTACAC TCCAGCCTGG GCAACAAGAG
CAAAACTCCC TCTCTCTCAA AAAAAAAAAA AAAAAAAAAA AAGAAGGAAA AGAAAACCAT GGACCTCCAG ACCCTGAGAC
CCCAGGCCCC AGCCCTGAGA TCCTGACATC TTAAAGATCC CAGGCCCTAA GATACAAGAC CTTGACCCAA AGCCAGCCTT
GGGACCCTGG CTGTACAAAC CCAAGACCTC CAGGACCTAG ACCCCGAGCC CTGAGGCCCT ATGTCTCACT CCCAACATCG
AAAACCCTGA CACCTCAGAT CCTGAGCCTG CGCCTGTACG ACTCCAAGAC CCTCACTTCC AAAGCCAGGC CCAAAGCCCT
GAGACCAGAA GACTTCAAAC CCTGGTTCTT GGGCTAACT CCAAAGACCC TGGATCTCAA ATTCCAACTT CTAGCTCTGA
GACTCCAGCC CTCACCCATG AGTTCCTGAA CTTGAACCCA GAGACCCCAT CTCTAAGACT TCAGCCTTGA GATCCAGGGC
CTGACCCTAG ACTCGAGCCC ACAGACCTCA GATACTGTCT GTAAAACCCC AGCTCTGGTG GGGAGCAGTG GCTCACTCCT
GTAATCCCAA GGCAGGGGAG GCCAAGGCAG AAGGACCTCT TGAGGCCATG AGTTTGAGAC AGCCTGGGCA GCATAGCAAG
ACTCTGTTTC TTAATTATTA TTATTATTAT TATTTTTTGG AGACAGAGTC TCGCGCTCTG TTGCCCAGGC TAGAGTGCAA
TGGTGCCATT TCGGCTTGCT GGAACCTCCG CCTCCTGGGC TCAAGCGATT CTCCTGCCTC AGCCTCCTGA GTAGCTGGGA
CTTCAGGTGC ACACTGCCAC ACCCGGATAA TTTTTTTGTA TTTTAGTAGA CACAGGGTTT CACCGTGTTG CCCAGGCTGG
TCACAAACTC CTGAGCTCAG GCCATCCGCC CGCCTCGGCC TCCCAAAGCG CTGGGATAAC AGGCGTGACG CCGCGCCTGG
CTTCTTAATT GTTCTAACAG CAGCGACAAC AACAAAAACC CAGCTCTGAG ATTCCAGCCC CGGCGACTCT AACAGTCCCA
GGCCCGATCC CTCACCTAGA ACCGAGATGC CAGCCCTGAC TCCACAGACT TCACCCCCAA CCCCCACACT CAGCTCTGGA
AGCCCGTCCT GACTCCAGCC TCCATTTTCG GAACCCCACA GCCTGAAGAG CTCCCGGCCT AAACACTTCA CCCCACGCGC
CACAGTCCCC CTGTGAATAT GCAGCCCCGA TTCAGCTGCA GCTCCACAGC ACCCCTGCCC TGCACCCCCG CTGCACCCCC
TACCTGTGAC TCACCTCTCT CCTCTCCCCA CAGATGTCCC GCCTGGCCCT GCCCCAGCCA CCCCCGGACC CGCCGGCGCC
CCCGCTGGCG CCCCCCTCCT CAGCCTGGGG GGGCATCAGG GCCGCCCACG CCATCCTGGG GGGGCTGCAC CTGACACTTG
ACTGGGCCGT GAGGGGACTG CTGCTGCTGA AGACTCGGCT GTGACCCGGG GCCCAAAGCC ACCACCGTCC TTCCAAAGCC
AGATCTTATT TATTTATTTA TTTCAGTACT GGGGGCGAAA CAGCCAGGTG ATCCCCCCGC CATTATCTCC CCCTAGTTAG
AGACAGTCCT TCCGTGAGGC CTGGGGGGCA TCTGTGCCTT ATTTATACTT ATTTATTTCA GGAGCAGGGG TGGGAGGCAG
GTGGACTCCT GGGTCCCCGA GGAGGAGGGG ACTGGGGTCC CGGATTCTTG GGTCTCCAAG AAGTCTGTCC ACAGACTTCT
GCCCTGGCTC TTCCCCATCT AGGCCTGGGC AGGAACATAT ATTATTTATT TAAGCAATTA CTTTTCATGT TGGGGTGGGG
ACGGAGGGGA AAGGGAAGCC TGGGTTTTTG TACAAAAATG TGAGAAACCT TTGTGAGACA GAGAACAGGG AATTAAATGT
GTCATACATA TCCACTTGAG GGCGATTTGT CTGAGAGCTG GGGCTGGATG CTTGGGTAAC TGGGGCAGGG CAGGTGGAGG
GGAGACCTCC ATTCAGGTGG AGGTCCCGAG TGGGCGGGGC AGCGACTGGG AGATGGGTCG GTCACCCAGA CAGCTCTGTG
GAGGCAGGGT CTGAGCCTTG CCTGGGGCCC CGCACTGCAT AGGGCCGTTT GTTTGTTTTT TGAGATGGAG TCTCGCTCTG
TTGCCTAGGC TGGAGTGCAG TGAGGCAATC TAAGGTCACT GCAACCTCCA CCTCCCGGGT TCAAGCAATT CTCCTGCCTC
AGCCTCCCGA TTAGCTGGGA TCACAGGTGT GCACCACCAT GCCCAGCTAA TTATTTATTT CTTTTGTATT TTTAGTAGAG
ACAGGGTTTC ACCATGTTGG CCAGGCTGGT TTCGAACTCC TGACCTCAGG TGATCCTCCT GCCTCGGCCT CCCAAAGTGC
TGGGATTACA GGTGTGAGCC ACCACACCTG ACCCATAGGT CTTCAATAAA TATTTAATGG AAGGTTCCAC AAGTCACCCT
GTGATCAACA GTACCCGTAT GGGACAAAGC TGCAAGGTCA AGATGGTTCA TTATGGCTGT GTTCACCATA GCAAACTGGA
AACAATCTAG ATATCCAACA GTGAGGGTTA AGCAACATGG TGCATCTGTG GATAGAACGC CACCCAGCCG CCCGGAGCAG
GGACTGTCAT TCAGGGAGGC TAAGGAGAGA GGCTTGCTTG GGATATAGAA AGATATCCTG ACATTGGCCA GGCATGGTGG
CTCACGCCTG TAATCCTGGC ACTTTGGGAG GACGAAGCGA GTGGATCACT GAAGTCCAAG AGTTTGAGAC CGGCCTGCGA
GACATGGCAA AACCCTGTCT CAAAAAAGAA AGAATGATGT CCTGACATGA AACAGCAGGC TACAAAACCA CTGCATGCTG
TGATCCCAAT TTTGTGTTTT TCTTTCTATA TATGGATTAA AACAAAAATC CTAAAGGGAA ATACGCCAAA ATGTTGACAA

TGACTGTCTC CAGGTCAAAG GAGAGAGGTG GGATTGTGGG TGACTTTTAA TGTGTATGAT TGTCTGTATT TTACAGAATT TCTGCCATGA CTGTGTATTT TGCATGACAC ATTTTAAAAA TAATAAACAC TATTTTTAGA ATAACAGAAT ATCAGCCTCC TCCTCTCCAA AAATAAGCCC TCAGGAGGGG ACAAAGTTGA CCGCTGATTG AGCCTGTCAG GGCTGTGCAC-3' (FRAG. NO:_)(SEQ ID NO:11891)

Human GM-CSF Nucleic Acid and Antisense Oligonucleotide Fragments

5'-CTTGBGCBGG BBGCTCTGGG GCBGGGBGCT GGCBGGGCCC BGGGGGGTGG CTTCCTGCBC TGTCCBGBGT GCBCTGTGCC BCBGCBGCBG CTGCBGGGCC BTCBGCTTCB TGGGGCTCTG GGTGGCBGGT CCBGCCBTGG GTCTGGGTGG GGCTGGGCTG CBGGCTCCGG GCGGTCCBGCCBTGGGTCTG GGGGCTGGG CTGCBGGCTC CGGGCGGGCG GGTGCGGGCT GCGTGCTGGG GGCTGCCCCG CAGGCCCTGC GGTCCBGCCB TGGGTCTGGG GGCTGGGCTG CBGGCTCCGG GCGGGCGGGT GCGGGCTGCG TGCTGGGGGC TGCCCCGCAG GCCCTGC-3' (FRAG. NO:1847) (SEQ ID NO:11229)

5'-GBGCBGG BBG-3' (FRAG. NO:1848) (SEQ ID NO:11230)

5'-GCCBCBGCBGCBGC-3' (FRAG. NO:1849) (SEQ ID NO:11231)

5'-GGG TGC GGG C-3' (FRAG. NO:1850) (SEQ ID NO:11232)

5'-GGT CCB GCC BTG GGT CTG GG-3' (FRAG. NO:1300)(SEQ ID NO:10678)

5'-GGC TGG GCT GCB GGC TCC GG-3' (FRAG. NO:1301)(SEQ ID NO:10679)

5'-GCG GGC GGG TGC GGG CTG CGT GCT GGG-3' (FRAG. NO:1302)(SEQ ID NO:10680)

5'-GGC TGC CCC GCA GGC CCT GC-3' (FRAG. NO:1303)(SEQ ID NO:10681)

5'-CTTGBGCBGG BBGCTCTGGG GCBGGGBGCT GGCBGGGCCC BGGGGGGTGG CTTCCTGCBC TGTCCBGBGT GCBCTGTGCC BCBGCBGCBG CTGCBGGGCC BTCBGCTTCB TGGGGCTCTG GGTGGCBGGT CCBGCCBTGG GTCTGGGTGG GGCTGGGCTG CBGGCTCCGG GC-3' (FRAG. NO:1851) (SEQ ID NO:11233)

Human Tumor Necrosis Factor (Antisense Oligonucleotide Fragments

5'-GCBCCGCCTG GBGCCCTGGG GCCCCCCTGT CTTCTTGGGG BGCGCCTCCT CGGCCBGCTC CBCGTCCCGG BTCBTGCTTT CBGTGCTCBT GGTGTCCTTT CCBGGGGBGB GBGGGGCTGG TCCTCTGCTG TCCTTGCTGG TGCTCBTGGT GTCCTTTCCG CCCTGGGGCC CCCCTGTCTT CTTGGGGCCT CTTCCCTCTG GGGGCCGTCT CTCTCCCTCT CTTGCGTCTC TCTCTTTCTC TCTCTCTCTT CCCCTTTCCC GCTCTTTCTG TCTCGGTGTC TGGTTTTCTC TCTCCGCTGG CTGCCTGTCT GGCCTGCGCT CTTGGCCTGT GCTGTTCCTC CTCCGGTTCC TGTCCTCTCT GTCTGTCGCC CCCTCTGGGG TCTCCCTCTG GGTGGTGGTC TTGTTGCTTG GGCTGGGCTC CGTGTCTCCB GTGCTCBTGG TGTCCGCTGB GGGBGCGTCT GCTGGCGCTG GTCCTCTGCTGTC CTTGCTGGTG CTCBTGGTGT CCTTTCCGCC CTGGGGCCCC CCTGTCTTCT TGGGGCCTCT TCCCTCTGGG GGCCGTCTC TCTCCCTCTC TTGCGTCTCT CTCTTTCTCT CTCTCTCTTC CCCTTTCCCG CTCTTTCTGT CTCGGTGTCT GGTTTTCTCT CTCCGCTGGC TGCCTGTCTG GCCTGCGCTC TTGGCCTGTG CTGTTCCTCC TCCGGTTCCT GTCCTCTCTG TCTGTCGCCC CCTCTGGGGT CTCCCTCTGG CGTGGTGGTC TTGTTGCTTG GGCTGGGCTC CGTGTCTCCB GTGCTCBTGG TGTCCGCTGB GGGBGCGTCT GCTGGC-3' (FRAG.NO:1852)(SEQ ID NO:11234)

5'-GGGGCCCCCC-3' (FRAG. NO:1853) (SEQ ID NO:11235)

5'- GGG GGC CG TCT-3' (FRAG. NO:1854) (SEQ ID NO:11236)

5'-CCBGGGGBGB GBGGGGCTGG-3' (FRAG. NO:1855) (SEQ ID NO:11237)

5'-GCBCCGCCTG GBGCCCTGGG GCCCCCCTGT CTTCTTGGGG BGCGCCTCCT CGGCCBGCTC CBCGTCCCGG BTCBTGCTTT CBGTGCTCBT GGTGTCCTTT CCBGGGGBGB GBGGG-3' (FRAG. NO:1304) (SEQ ID NO:10682)

5'-GCT GGT CCT CTG CTG TCC TTG CTG GTG CTC BTG GTG TCC TTT CC GCC CTG GGG CCC CCC TGT CTT CTT GGG G CCT CTT CCC TCT GGG GGC CG TCT CTC TCC CTC TCT TGC GTC TCT C TCT TTC TCT CTC TCT CTT CCC C TTT CCC GCT CTT TCT GTC TC GGT GTC TGG TTT TCT CTC TCC GCT GGC TGC CTG TCT GGC CTG CGC TCT T GGC CTG TGC TGT TCC TCC TCC GGT TCC TGT CCT CTC TGT CTG TC GCC CCC TCT GGG GTC TCC CTC TGG C GTG GTG GTC TTG TTG CTT GGG CTG GGC TCC GTG TCT C CBG TGC TCB TGG TGT CC-3' (FRAG. NO:1305) (SEQ ID NO:10683)

5'-GCT GBG GGB GCG TCT GCT GGC GCT GGT CCT CTG CTG TCC TTG CTG GTG CTC BTG GTG TCC TTT CC GCC CTG GGG CCC CCC TGT CTT CTT GGG G CCT CTT CCC TCT GGG GGC CG TCT CTC TCC CTC TCT TGC GTC TCT C TCT TTC TCT CTC TCT CTT CCC C TTT CCC GCT CTT TCT GTC TC GGT GTC TGG TTT TCT CTC TCC GCT GGC TGC CTG TCT GGC CTG CGC TCT T GGC CTG TGC TGT TCC TCC TCC GGT TCC TGT CCT CTC TGT CTG TC GCC CCC TCT GGG GTC TCC CTC TGG C GTG GTG GTC TTG TTG CTT GGG CTG GGC TCC GTG TCT C CBG TGC TCB TGG TGT CC GCT GBG GGB GCG TCT GCT GGC-3'(FRAG.NO:1306)(SEQ ID NO:10684)

5'-GCT GGT CCT CTG CTG TCC TTG CTG-3' (FRAG. NO:1655) (SEQ ID NO:11033)

5'-GTG CTC BTG GTG TCC TTT CC-3' (FRAG. NO:1656)(SEQ ID NO:11034)

5'-GCC CTG GGG CCC CCC TGT CTT CTT GGG G-3' (FRAG. NO:1657)(SEQ ID NO:11035)

5'-CCT CTT CCC TCT GGG GGC CG-3' (FRAG. NO:1658)(SEQ ID NO:11036)

5'-TCT CTC TCC CTC TCT TGC GTC TCT C-3' (FRAG. NO:1659)(SEQ ID NO:11037)

5'-TCT TTC TCT CTC TCT CTT CCC C-3' (FRAG. NO:1660)(SEQ ID NO:11038)

5'-TTT CCC GCT CTT TCT GTC TC-3' (FRAG. NO:1661)(SEQ ID NO:11039)

5'-GGT GTC TGG TTT TCT CTC TCC-3' (FRAG. NO:1662)(SEQ ID NO:11040)

5'-GCT GGC TGC CTG TCT GGC CTG CGC TCT T-3' (FRAG. NO:1663)(SEQ ID NO:11041)

5'-GGC CTG TGC TGT TCC TCC-3' (FRAG. NO:1664)(SEQ ID NO:11042)

5'-TCC GGT TCC TGT CCT CTC TGT CTG TC-3' (FRAG. NO:1665)(SEQ ID NO:11043)

5'-GCC CCC TCT GGG GTC TCC CTC TGG C-3' (FRAG. NO:1666)(SEQ ID NO:11044)

5'-GTG GTG GTC TTG TTG CTT-3' (FRAG. NO:1667)(SEQ ID NO:11045)

5'-GGG CTG GGC TCC GTG TCT C-3' (FRAG. NO:1668)(SEQ ID NO:11046)

5'-CBG TGC TCB TGG TGT CC-3' (FRAG. NO:1669)(SEQ ID NO:11047)

5'-GCT GBG GGB GCG TCT GCT GGC-3' (FRAG. NO:1670)(SEQ ID NO:11048)

Human Leukotriene C4 Synthase Nucleic Acids and Antisense Oligonucleotide Fragments

5'-CTCGGTBGBC GCGCTCGBBC TCGGGTGGGC CGGTGGTGBG CGGCGGCGBCB CGCGGBBGGC CCTGCGCGCC GBGBTCBCCTG CBGGGBGBBG TBGGCTTGCB GCBGGBCTCC CBGGBGGGTG BCBGCBGCCB GTBGBGCTBC CTCGTCCTTC BTGGTBCCGT CGGTGTGGTG GCBCGGGCTG TGTGTGBBGG CGBGCTGGGC CCCGTCTGCT GCTCCTCGTG CCGCCTCGTC CTTCA TGG TA CCGTCGGTGT GGTGGCCTCG GGTGGGCCGG TGGTGGGGCG CGCGCGCTCG CGTGGCTCCG GCTCTTCTTT CCCGGCTCCGT CGGCCCGGGG GCCTTGGTCT CCCTCGTCCT TCBTGGTBCC G-3' (FRAG. NO:1856) (SEQ ID NO:11238)

5'-GCB GCBGGBC-3' (FRAG. NO:1857) (SEQ ID NO:11239)

5'-CCCGGCTCCG-3' (FRAG. NO:1858) (SEQ ID NO:11240)

5-CGGCCCGGGG GCC-3' (FRAG. NO:1859) (SEQ ID NO:11241)

5'-CB CGCGG-3' (FRAG. NO:1860) (SEQ ID NO:11242)

5'-GCC CCG TCT GCT GCT CCT CGT GCC G-3' (FRAG. NO:1307)(SEQ ID NO:10685)

5'-CCT CGT CCT TCA TGG TAC CGT CGG TGT GGT GGC-3' (FRAG. NO:1308)(SEQ ID NO:10686)

5'-CTC GGG TGG GCC GGT GGT G-3' (FRAG. NO:1309)(SEQ ID NO:10687)

5'-GGG CGC GCG CGC TCG CGT-3' (FRAG. NO:1310)(SEQ ID NO:10688)

5'-GGC TCC GGC TCT TCT TTC CCG GCT CCG TCG GCC CGG GGG CCT TGG TCT C-3'(FRAG.NO:1311)(SEQ ID NO:10689)

5'-CCT CGT CCT TCB TGG TBC CG-3' (FRAG. NO:1312)(SEQ ID NO:10690)

5'-CTCGGTBGBC GCGCTCGBBC TCGGGTGGGC CGGTGGTGBG CGGCGGCGBCB CGCGGBBGGC CCTGCGCGCC GBGBTCBCCTG CBGGGBGBBG TBGGCTTGCB GCBGGBCTCC CBGGBGGGTG BCBGCBGCCB GTBGBGCTBC CTCGTCCTTC BTGGTBCCGT CGGTGTGGTG GCBCGGGCTG TGTGTGBBGG CGBGCTGG-3' (FRAG.NO:1861) (SEQ ID NO:11243)

__Human Endothelin-1 Nucleic Acids and Antisense Oligonucleotide Fragments__

5'-BCCGGCGGBG CCGCCBGGGT GGBCTGGGBG TGGGTTTCTC CCCGCCGTTC TCBCCCBCCG CGCTGBGCTC BGCGCCTBBG BCTGCTGTTT CTGGBGCTCC TTGGCBBGCC BCBBBCBGCB GBGBGBBBBT CBTGBGCBBB TBBTCCBTTC TGBBBBBBBG GGBTCBBBBB CCTCCCGTTC CCCGTTCGCC TGGCGCGCGC TGCGGGTTCC TCGTGGGTTT CTCCCCGCCG TTCTCCGGTC TGTTGCCTTT GTGGGCTTCT TGTCTTTTTG GCTGTTCTTT TCCTGCTTGG CGTCTTTTCC TTTCTTTGTG CTCGGTTGTG GGTCCGCTGG TCCTTTGCCC TGTGTGTTTC TGCTGCCCGT TCGCCTGGCG CGCGCTGCGG GTTCCTCGTG GGTTTCTCCC CGCCGTTCTC CGGTCTGTTG CCTTTGTGGG CTTCTTGTCT TTTTGGCTGT TCTTTTCCTG CTTGGCGTCT TTTCCTTTCT TTGTGCTCGG TTGTGGGTCC GCTGGTCCTT TGCCCTGTGT GTTTCTGCTG-3' (FRAG. NO:1862) (SEQ ID NO:11244)

5'-CCGGCGGBG CCGCCBGGGT GGBC-3' (FRAG. NO:1863) (SEQ ID NO:11245)

5'-CCGCCBGGG-3' (FRAG. NO:1864) (SEQ ID NO:11246)

5'-GGCGCGCGC-3' (FRAG. NO:1865) (SEQ ID NO:11247)

5'-GTGGGTCCGC-3' (FRAG. NO:1866) (SEQ ID NO:11248)

5'-CCCGTTCGCCTGGCGC-3' (FRAG. NO:1313)(SEQ ID NO:10691)

5'-GCGCTGCGGGTTCCTC-3' (FRAG. NO:1314)(SEQ ID NO:10692)

5'-GTGGGTTTCTCCCCGCCGTTCTC-3' (FRAG. NO:1315)(SEQ ID NO:10693)

5'-CGGTCTGTTGCCTTTGTGGG -3' (FRAG. NO:1316)(SEQ ID NO:10694)

5'-CTTCTTGTCTTTTTGGCT-3' (FRAG. NO:1317)(SEQ ID NO:10695)

5'-GTTCTTTTCCTGCTTGGC-3' (FRAG. NO:1318)(SEQ ID NO:10696)

5'-GTCTTTTCCTTTCTT-3' (FRAG. NO:1319)(SEQ ID NO:10697)

5'-TGTGCTCGGTTGTGGGTC-3' (FRAG. NO:1320)(SEQ ID NO:10698)

5'-CGCTGGTCCTTTGCC-3' (FRAG. NO:1321)(SEQ ID NO:10699)

5'-CTGTGTGTTTCTGCTG-3' (FRAG. NO:1322)(SEQ ID NO:10700)

5'-CCCGTTCGCCTGGCGC-3' (FRAG. NO:1323)(SEQ ID NO:10701)

5'-GCGCTGCGGGTTCCTC-3' (FRAG. NO:1324)(SEQ ID NO:10702)

5'-GTGGGTTTCTCCCCGCCGTTCTC-3' (FRAG. NO:1325(SEQ ID NO:10703)

5'-CGGTCTGTTGCCTTTGTGGG-3' (FRAG. NO:1326)(SEQ ID NO:10704)

5'-CTTCTTGTCTTTTTGGCT-3' (FRAG. NO:1327)(SEQ ID NO:10705)

5'-GTTCTTTTCCTGCTTGGC-3' (FRAG. NO:1328)(SEQ ID NO:10706)

5'-GTCTTTTCCTTTCTT-3' (FRAG. NO:1329)(SEQ ID NO:10707)

5'-TGTGCTCGGTTGTGGGTC-3' (FRAG. NO:1330)(SEQ ID NO:10708)

5'-CGCTGGTCCTTTGCC-3' (FRAG. NO:1331)(SEQ ID NO:10709)

5'-CTGTGTGTTTCTGCTG-3' (FRAG. NO:1332)(SEQ ID NO:10710)

__Endothelin Receptor ET-B Nucleic Acids and Antisense Oligonucleotide Fragments__

5'-GCCCTGTCGG GCGGGAAGCC TCTCTCCTCT CCCCAGATC CGCGACAGGC CGCAGGCAAG AACCAGCGCA ACCAGGGCGC GTCCGCACAG ACTTGGAGGC GGCTGCATGC TGCTACCTGC TCCAGAAGCG TCCGGTGGCC GCCGCGCC CTGTCGGGCG GGBBGCCTCT CTCCTCTCCC CBGBTCCGCG BCBGGCCGCB GGCBBGBBCC BGCGCBBCCB GGGCGCGTCC GCBCBGBCTT GGBGGCGGCT GCBTGCTGCT BCCTGCTCGGGCG GGBBGCCTCCG GTGGCCGCCG CGCGTCCGGT GGCCGCCGCG CCTCTCTCCT CTCCCCGTGG CCCTGTCGGG CGGGTCCTGC CGTCCTGTCT CCTTTTCTTT TGCTGTCTTG TCTTCCCGTC TCTGCTTT-3' (FRAG. NO: 1867) (SEQ ID NO:11249)

5'-CGGGCG GGBBGCC-3' (FRAG. NO: 1868) (SEQ ID NO:11250)

5'-CGGGCGGG-3' (FRAG. NO: 1869) (SEQ ID NO:11251)

5'-CCGCBCBGBC-3' (FRAG. NO: 1870) (SEQ ID NO:11252)

5'-GCGTCCGGTGGCCGCCGC-3' (FRAG. NO:1333)(SEQ ID NO:10711)

5'-GCCTCTCTCCTCTCCCC-3' (FRAG. NO:1334)(SEQ ID NO:10712)

5'-GTGGCCCTGTCGGGCGGG-3' (FRAG. NO:1335)(SEQ ID NO:10713)

5'-TCCTGCCGTCCTGTCTCCTTT-3' (FRAG. NO:1336)(SEQ ID NO:10714)

5'-TCTTTTGCTGTCTTGT-3' (FRAG. NO:1337)(SEQ ID NO:10715)

5'-CTTCCCGTCTCTGCTTT-3' (FRAG. NO:1338)(SEQ ID NO:10716)

5'-GCCCTGTCGG GCGGGAAGCC TCTCTCCTCT CCCCAGATC CGCGACAGGC CGCAGGCAAG AACCAGCGCA ACCAGGGCGC GTCCGCACAG ACTTGGAGGC GGCTGCATGC TGCTACCTGC TCCAGAAGCG TCCGGTGGCC GCCGC-3' (FRAG. NO: 1871) (SEQ ID NO:11253)

5'-GCCCTGTCGG GCGGGBBGCC TCTCTCCTCT CCCCBGBTCC GCGBCBGGCC GCBGGCBBGB BCCBGCGCB BCCBGGGCGC GTCCGCBCBG BCTTGGBGGC GGCTGCBTGC TGCTBCCTGC TCCBGBBGCG TCCGGTGGCC GCCGC-3' (FRAG. NO: 1872) (SEQ ID NO:11254)

__Endothelin ETA Receptor Nucleic Acids and Antisense Oligonucleotide Fragments__

5'-GTCTGTCCTC CCCGTCTCCT CCCACTGCTT CTCCCGGGGG CTTCCCCGGC TTCGGGTGGC CGGTGTCCCG GGCTCCGGCG CGGCGGCGGC TTCGGCTGCG GGTGGGTGGC GCGGGCTGCC GGGTCCGCGC GGCGCCTGGG CCCTTGTGCT GCTTTTTGCT TGTTCCGTTC TGGCTGCTCC GGTCTGTGTT GTGGTTGTTT TGTTTCTTCT TGGGTGTGGG CCTTGCGGTT TTGGCTGTGG GCCCTTTGGG GCCTTGGCTT CTGGCTCGTC TGTCCTCCCC GTCTCCTCCC ACTGCTTCT CCCGGGGGCT TCCCCGGCTT CGGGTGGCCG GTGTCCCGGG CTCCGGCGCG GCGGCGGCTT CGGCTGCGGG TGGGTGGCGC GGGCTGCCGG GTCCGCGCGG CGCCTGGGCC CTTGTGCTGC TTTTTGCTTG TTCCGTTCTG GCTGCTCCGG TCTGTGTTGT GGTTGTTTTG TTTCTTCTTG GGTGTGGGCC TTGCGGTTTT GGCTGTGGGC CCTTTGGGGC CTTGGCTTCT GGCTCCAT CCACATGATT GCTTAGATTT GTGCTGTATC TCTCAGGATT ATCACTGATT ACACATCCAA CCAGTGCCAG CCAAAAGGAT GCCCTGAGGC AAAGGGTTTC CATCTTGAGG CAAATTTGAG GACBTCCBC BTGBTTGCTT BGBTTTGTGC TGTBTCTCTC BGGBTTBTCB CTGBTTBCBC

BTCCBBCCBG TGCCBGCCBB BBGGBTGCCC TGBGGCBBBG GGTTTCCBTC TTGBGGCBBB TTTGBGGB-3' (FRAG. NO:1873) (SEQ ID NO:11255)

5'-GBGGCBBBGGG-3' (FRAG. NO:1874) (SEQ ID NO:11256)

5'-GCCBGCCBB BBGGB-3' (FRAG. NO:1875) (SEQ ID NO:11257)

5'-CGCCTGGGCC C-3' (FRAG. NO:1876) (SEQ ID NO:11258)

5'-GTCTGTCCTCCCCGTCTCCTCCC-3' (FRAG. NO:1339)(SEQ ID NO:10717)

5'-ACTGCTTCTCCCGGGG-3' (FRAG. NO:1340)(SEQ ID NO:10718)

5'-GCTTCCCCGGCTTC-3' (FRAG. NO:1341)(SEQ ID NO:10719)

5'-GGGTGGCCGGTGTCCCGGGCTCCGGCGCGGCGGC-3' (FRAG. NO:1342)(SEQ ID NO:10720)

5'-GGCTTCGGCTGC-3' (FRAG. NO:1343)(SEQ ID NO:10721)

5'-GGGTGGGTGGCGCGG-3' (FRAG. NO:1344)(SEQ ID NO:10722)

5'-GCTGCCGGGTCCGCGCGGCGCCTGGGCC-3' (FRAG. NO:1345)(SEQ ID NO:10723)

5'-CTTGTGCTGCTTTT-3' (FRAG. NO:1346(SEQ ID NO:10724)

5'-TGCTTGTTCCGTTC-3' (FRAG. NO:1347)(SEQ ID NO:10725)

5'-TGGCTGCTCCGGTCTGTGTTGTGGTTGTTTTG-3' (FRAG. NO:1348)(SEQ ID NO:10726)

5'-TTTCTTCTTGGGTGTGGG-3' (FRAG. NO:1349)(SEQ ID NO:10727)

5'-CCTTGCGGTTTTGG-3' (FRAG. NO:1350)(SEQ ID NO:10728)

5'-CTGTGGGCCCTTTG-3' (FRAG. NO:1351)(SEQ ID NO:10729)

5'-GGGCCTTGGCTTCTGGCTC-3' (FRAG. NO:1352)(SEQ ID NO:10730)

5'-CATCCACATG ATTGCTTAGA TTTGTGCTGT ATCTCTCAGG ATTATCACTG ATTACACATC CAACCAGTGC CAGCCAAAAG GATGCCCTGA GGCAAAGGGT TTCCATCTTG AGGCAAATTT GAGGA-3' (FRAG.NO:1353) (SEQ ID NO:10731)

5'-CBTCCBCBTG BTTGCTTBGB TTTGTGCTGT BTCTCTCBGG BTTBTCBCTG BTTBCBCBTC CBBCCBGTGC CBGCCBBBBG GBTGCCCTGB GGCBBBGGGT TTCCBTCTTG BGGCBBBTTT GBGGB-3' (FRAG. NO:1354)(SEQ ID NO:10732)

Endothelin Receptor A Nucleic Acid and Antisense Oligonucleotide Fragments

5'-GCCACCATGG AAACCCTTTG CCTCAGGGCA TCCTTTTGGC TGGCACTGGT TGGATGTGTA ATCAGTGATA ATCCTGAGAG ATACAGCACA AATCTAAGCA ATCATGTGGA TGATTTCACC ACTTTTCGTG GCACAGAGCT CAGCTTCCTG GTTACCACTC ATCAACCCAC TAATTTGGTC CTACCCAGCA ATGGCTCAAT GCACAACTAT TGCCCACAGC AGACTAAAAT TACTTCAGCT TTCAAATACA TTAACACTGT GATATCTTGT ACTATTTTCA TCGTGGGAAT GGTGGGGAAT GCAACTCTGC TCAGGATCAT TTACCAGAAC AAATGTATGA GGAATGGCCC CAACGCGCTG ATAGCCAGTC TTGCCCTTGG AGACCTTATC TATGTGGTCA TTGATCTCCC TATCAATGTA TGGCTGGGCG CTGGCCTTTT GATCACAATG ACTTTGGCGT ATTTCTTTGC AAGCTGTTCC CCTTTTTGCA GAAGTCCTCG GTGGGGATCA CCGTCCTCAA CCTCTGCGCT CTTAGTGTTG ACAGGTACAG AGCAGTTGCC TCCTGGAGTC GTGTTCAGGG AATTGGGATT CCTTTGGTAA CTGCCATTGA AATTGCCTCC ATCTGGATCC TGTCCTTTAT CCTGGCCATT CCTGAAGCGA TTGGCTTCGT CATGGTACCC TTTGAATATA GGGGTGGACA GCATAAAACC TGTATGCTCA ATGCCACATC AAAATTCATG GAGTTCTACC AAGATGTAAA GGACTGGTGG CTCTTCGGGT TCTATTTCTG TATGCCCTTG GTGTGCACTG CGATCTTCTA CACCCTCATG ACTGGTGAGA TGTTGAACAG AAGGAATGGC AGCTTGAGAA TTGCCCTCAG TGAACATCTT AAGCAGCGTC GAGAAGTGGC AAAAACAGTT TTCTGCTTGG TTGTAATTTT TGCTCTTTGC TGGTTCCCTC TTCATTTAAG CCGTATATTG AAGAAAACTG TGTATAACGA GATGGACAAG AACCGATGTG AATTACTTAG TTTCTTACTG CTCATGGATT ACATCGGTAT TAACTTGGCA ACCATGAATT CATGTATAAA CCCCATAGCT CTGTATTTTG TGAGCAAGAA ATTTAAAAAT TGTTTCCAGT CATGCCTCTG CTGCTGCTGT TACCAGTCCA AAAGTCTGAT GACCTCGGTC CCCATGAACG GAACAAGCAT CCAGTGGAAG AACCACGATC AAAACAACCA CAACACAGAC CGGAGCAGCC ATAAGGACAG CATGAACTGA CCACCCTTAG AAGCACTCCT GAATTCGGGA AAAGTGAAG GTGTAAAAGC AGCACAAGTG CAATAAGAGA TATTTCCTCA AATTTGCCTC AAGATGGAAA CCCTTTGCCT CAGGGCATCC TTTTGGCTGG CACTGGTTGG ATGTGTAATC AGTGATAATC CTGAGAGATA CAGCACAAAT CTAAGCAATC ATGTGGATGA TTTCACCACT TTTCGTGGCA CAGAGCTCAG CTTCCTGGTT ACCACTCATC AACCCACTAA TTTGGTCCTA CCCAGCAATG GCTCAATGCA CAACTATTGC CCACAGCAGA CTAAAATTAC TTCAGCTTTC AAATACATTA ACACTGTGAT ATCTTGTACT ATTTTCATCG TGGGAATGGT GGGGAATGCA ACTCTGCTCA GGATCATTTA CCAGAACAAA TGTATGAGGA ATGGCCCCAA CGCGCTGATA GCCAGTCTTG CCCTTGGAGA CCTTATCTAT GTGGTCATTG ATCTCCCTAT CAATGTATTT AAGCTGCTGG CTGGGCGCTG GCCTTTTGAT CACAATGACT TTGGCGTATT TCTTTGCAAG CTGTTCCCCT TTTTGCAGAA GTCCTCGGTG GGGATCACCG TCCTCAACCT CTGCGCTCTT AGTGTTGACA GGTACAGAGC AGTTGCCTCC TGGAGTCGTG TTCAGGGAAT TGGGATTCCT TTGGTAACTG CCATTGAAAT TGTCTCCATC TGGATCCTGT CCTTTATCCT GGCCATTCCT GAAGCGATTG GCTTCGTCAT GGTACCCTTT GAATATAGGG GTGAACAGCA TAAAACCTGT ATGCTCAATG CCACATCAAA ATTCATGGAG TTCTACCAAG ATGTAAAGGA CTGGTGGCTC TTCGGGTTCT ATTTCTGTAT GCCCTTGGTG TGCACTGCGA TCTTCTACAC CCTCATGACT TGTGAGATGT TGAACAGAAG GAATGGCAGC TTGAGAATTG CCCTCAGTGA ACATCTTAAG CAGCGTCGAG AAGTGGCAAA AACAGTTTTC TGCTTGGTTG TAATTTTTGC TCTTTGCTGG TTCCCTCTTC ATTTAAGCCG TATATTGAAG AAAACTGTGT ATAACGAGAT GGACAAGAAC CGATGTGAAT TACTTAGTTT CTTACTGCTC ATGGATTACA TCGGTATTAA CTTGGCAACC ATGAATTCAT GTATAAACCC CATAGCTCTG TATTTTGTGA GCAAGAAATT TAAAAATTGT TTCCAGTCAT GCCTCTGCTG CTGCTGTTAC CAGTCCAAAA GTCTGATGAC CTCGGTCCCC ATGAACGGAA CAAGCATCCA GTGGAAGAAC CACGATCAAA ACAACCACAA CACAGACCGG AGCAGCCATA AGGACAGCAT GAACTGACCA CCCTTAGAAG CACTCCTCGG TACTCCCATA ATCCTCTCGG AGAAAAAAAT CACAAGGCAA CTGTGAGTCC GGGAATCTCT TCTCTGATCC TTCTTCCTTA ATTCACTCCC ACACCCAAGA AGAAATGCTT TCCAAAACCG CAAGGGTAGA CTGGTTTATC CACCCACAAC ATCTACGAAT CGTACTTCTT TAATTGATCT AATTTACATA TTCTGCGTGT TGTATTCAGC ACTAAAAAAT GGTGGGAGCT GGGGGAGAAT GAAGACTGTT AAATGAAACC AGAAGGATAT TTACTACTTT TGCATGAAAA TAGAGCTTTC AAGTACATGG CTAGCTTTTA TGGCAGTTCT GGTGAATGTT CAATGGGAAC TGGTCACCAT GAAACTTTAG AGATTAACGA CAAGATTTTC TACTTTTTTT AAGTGATTTT TTTGTCCTTC AGCCAAACAC AATATGGGCT CAAGTCACTT TTATTTGAAA TGTCATTTGG TGCCAGTATC CCGAATTC GAATTCGGGA AAAAGTGAAG GTGTAAAAGC AGCACAAGTG CAATAAGAGA TATTTCCTCA AATTTGCCTC AAGATGGAAA CCCTTTGCCT CAGGGCATCC TTTTGGCTGG CACTGGTTGG ATGTGTAATC AGTGATAATC CTGAGAGATA CAGCACAAAT CTAAGCAATC ATGTGGATGA TTTCACCACT TTTCGTGGCA CAGAGCTCAG CTTCCTGGTT ACCACTCATC AACCCACTAA TTTGGTCCTA CCCAGCAATG GCTCAATGCA CAACTATTGC CCACAGCAGA CTAAAATTAC TTCAGCTTTC AAATACATTA ACACTGTGAT ATCTTGTACT ATTTTCATCG TGGGAATGGT GGGGAATGCA ACTCTGCTCA GGATCATTTA CCAGAACAAA TGTATGAGGA ATGGCCCCAA CGCGCTGATA GCCAGTCTTG CCCTTGGAGA CCTTATCTAT GTGGTCATTG ATCTCCCTAT CAATGTATTT AAGCTGCTGG CTGGGCGCTG GCCTTTTGAT CACAATGACT TTGGCGTATT TCTTTGCAAG CTGTTCCCCT TTTTGCAGAA GTCCTCGGTG GGGATCACCG TCCTCAACCT CTGCGCTCTT AGTGTTGACA GGTACAGAGC AGTTGCCTCC TGGAGTCGTG TTCAGGGAAT TGGGATTCCT TTGGTAACTG CCATTGAAAT TGTCTCCATC TGGATCCTGT CCTTTATCCT GGCCATTCCT GAAGCGATTG GCTTCGTCAT GGTACCCTTT GAATATAGGG GTGAACAGCA TAAAACCTGT ATGCTCAATG CCACATCAAA ATTCATGGAG TTCTACCAAG ATGTAAAGGA CTGGTGGCTC TTCGGGTTCT ATTTCTGTAT GCCCTTGGTG TGCACTGCGA TCTTCTACAC CCTCATGACT

TGTGAGATGT TGAACAGAAG GAATGGCAGC TTGAGAATTG CCCTCAGTGA ACATCTTAAG CAGCGTCGAG AAGTGGCAAA AACAGTTTTC TGCTTGGTTG TAATTTTTGC TCTTTGCTGG TTCCCTCTTC ATTTAAGCCG TATATTGAAG AAAACTGTGT ATAACGAGAT GGACAAGAAC CGATGTGAAT TACTTAGTTT CTTACTGCTC ATGGATTACA TCGGTATTAA CTTGGCAACC ATGAATTCAT GTATAAACCC CATAGCTCTG TATTTTGTGA GCAAGAAATT TAAAAATTGT TTCCAGTCAT GCCTCTGCTG CTGCTGTTAC CAGTCCAAAA GTCTGATGAC CTCGGTCCCC ATGAACGGAA CAAGCATCCA GTGGAAGAAC CACGATCAAA ACAACCACAA CACAGACCGG AGCAGCCATA AGGACAGCAT GAACTGACCA CCCTTAGAAG CACTCCTCGG TACTCCCATA ATCCTCTCGG AGAAAAAAAT CACAAGGCAA CTGTGAGTCC GGGAATCTCT TCTCTGATCC TTCTTCCTTA ATTCACTCCC ACACCCAAGA AGAAATGCTT TCCAAAACCG CAAGGGTAGA CTGGTTTATC CACCCACAAC ATCTACGAAT CGTACTTCTT TAATTGATCT AATTTACATA TTCTGCGTGT TGTATTCAGC ACTAAAAAAT GGTGGGAGCT GGGGGAGAAT GAAGACTGTT AAATGAAACC AGAAGGATAT TTACTACTTT TGCATGAAAA TAGAGCTTTC AAGTACATGG CTAGCTTTTA TGGCAGTTCT GGTGAATGTT CAATGGGAAC TGGTCACCAT GAAACTTTAG AGATTAACGA CAAGATTTTC TACTTTTTTT AAGTGATTTT TTTGTCCTTC AGCCAAACAC AATATGGGCT CAAGTCACTT TTATTTGAAA TGTCATTTGG TGCCAGTATC CCGAATTC-3' (FRAG. NO:___) (SEQ ID NO:12383)

5'-GAATTCGGGA AAAAGTGAAG GTGTAAAAGC AGCACAAGTG CAATAAGAGA TATTTCCTCA AATTTGCCTC AAGATGGAAA CCCTTTGCCT CAGGGCATCC TTTTGGCTGG CACTGGTTGG ATGTGTAATC AGTGATAATC CTGAGAGATA CAGCACAAAT CTAAGCAATC ATGTGGATGA TTTCACCACT TTTCGTGGCA CAGAGCTCAG CTTCCTGGTT ACCACTCATC AACCCACTAA TTTGGTCCTA CCCAGCAATG GCTCAATGCA CAACTATTGC CCACAGCAGA CTAAAATTAC TTCAGCTTTC AAATACATTA ACACTGTGAT ATCTTGTACT ATTTTCATCG TGGGAATGGT GGGGAATGCA ACTCTGCTCA GGATCATTTA CCAGAACAAA TGTATGAGGA ATGGCCCCAA CGCGCTGATA GCCAGTCTTG CCCTTGGAGA CCTTATCTAT GTGGTCATTG ATCTCCCTAT CAATGTATTT AAGCTGCTGG CTGGGCGCTG GCCTTTTGAT CACAATGACT TTGGCGTATT TCTTTGCAAG CTGTTCCCCT TTTTGCAGAA GTCCTCGGTG GGGATCACCG TCCTCAACCT CTGCGCTCTT AGTGTTGACA GGTACAGAGC AGTTGCCTCC TGGAGTCGTG TTCAGGGAAT TGGGATTCCT TTGGTAACTG CCATTGAAAT TGTCTCCATC TGGATCCTGT CCTTTATCCT GGCCATTCCT GAAGCGATTG GCTTCGTCAT GGTACCCTTT GAATATAGGG GTGAACAGCA TAAAACCTGT ATGCTCAATG CCACATCAAA ATTCATGGAG TTCTACCAAG ATGTAAAGGA CTGGTGGCTC TTCGGGTTCT ATTTCTGTAT GCCCTTGGTG TGCACTGCGA TCTTCTACAC CCTCATGACT TGTGAGATGT TGAACAGAAG GAATGGCAGC TTGAGAATTG CCCTCAGTGA ACATCTTAAG CAGCGTCGAG AAGTGGCAAA AACAGTTTTC TGCTTGGTTG TAATTTTTGC TCTTTGCTGG TTCCCTCTTC ATTTAAGCCG TATATTGAAG AAAACTGTGT ATAACGAGAT GGACAAGAAC CGATGTGAAT TACTTAGTTT CTTACTGCTC ATGGATTACA TCGGTATTAA CTTGGCAACC ATGAATTCAT GTATAAACCC CATAGCTCTG TATTTTGTGA GCAAGAAATT TAAAAATTGT TTCCAGTCAT GCCTCTGCTG CTGCTGTTAC CAGTCCAAAA GTCTGATGAC CTCGGTCCCC ATGAACGGAA CAAGCATCCA GTGGAAGAAC CACGATCAAA ACAACCACAA CACAGACCGG AGCAGCCATA AGGACAGCAT GAACTGACCA CCCTTAGAAG CACTCCTCGG TACTCCCATA ATCCTCTCGG AGAAAAAAAT CACAAGGCAA CTGTGAGTCC GGGAATCTCT TCTCTGATCC TTCTTCCTTA ATTCACTCCC ACACCCAAGA AGAAATGCTT TCCAAAACCG CAAGGGTAGA CTGGTTTATC CACCCACAAC ATCTACGAAT CGTACTTCTT TAATTGATCT AATTTACATA TTCTGCGTGT TGTATTCAGC ACTAAAAAAT GGTGGGAGCT GGGGGAGAAT GAAGACTGTT AAATGAAACC AGAAGGATAT TTACTACTTT TGCATGAAAA TAGAGCTTTC AAGTACATGG CTAGCTTTTA TGGCAGTTCT GGTGAATGTT CAATGGGAAC TGGTCACCAT GAAACTTTAG AGATTAACGA CAAGATTTTC TACTTTTTTT AAGTGATTTT TTTGTCCTTC AGCCAAACAC AATATGGGCT CAAGTCACTT TTATTTGAAA TGTCATTTGG TGCCAGTATC CCGAATTC-3' (FRAG. NO:___) (SEQ ID NO:11851)

5'-GAATTCGGGA AAAAGTGAAG GTGTAAAAGC AGCACAAGTG CAATAAGAGA TATTTCCTCA AATTTGCCTC AAGATGGAAA CCCTTTGCCT CAGGGCATCC TTTTGGCTGG CACTGGTTGG ATGTGTAATC AGTGATAATC CTGAGAGATA CAGCACAAAT CTAAGCAATC ATGTGGATGA TTTCACCACT TTTCGTGGCA CAGAGCTCAG CTTCCTGGTT ACCACTCATC AACCCACTAA TTTGGTCCTA CCCAGCAATG GCTCAATGCA CAACTATTGC CCACAGCAGA CTAAAATTAC TTCAGCTTTC AAATACATTA ACACTGTGAT ATCTTGTACT ATTTTCATCG TGGGAATGGT GGGGAATGCA ACTCTGCTCA GGATCATTTA CCAGAACAAA TGTATGAGGA ATGGCCCCAA CGCGCTGATA GCCAGTCTTG CCCTTGGAGA CCTTATCTAT GTGGTCATTG ATCTCCCTAT CAATGTATTT AAGCTGCTGG CTGGGCGCTG GCCTTTTGAT CACAATGACT TTGGCGTATT TCTTTGCAAG CTGTTCCCCT TTTTGCAGAA GTCCTCGGTG GGGATCACCG TCCTCAACCT CTGCGCTCTT AGTGTTGACA GGTACAGAGC AGTTGCCTCC TGGAGTCGTG TTCAGGGAAT TGGGATTCCT TTGGTAACTG CCATTGAAAT TGTCTCCATC TGGATCCTGT CCTTTATCCT GGCCATTCCT GAAGCGATTG GCTTCGTCAT GGTACCCTTT GAATATAGGG GTGAACAGCA TAAAACCTGT ATGCTCAATG CCACATCAAA ATTCATGGAG TTCTACCAAG ATGTAAAGGA CTGGTGGCTC TTCGGGTTCT ATTTCTGTAT GCCCTTGGTG TGCACTGCGA TCTTCTACAC CCTCATGACT TGTGAGATGT TGAACAGAAG GAATGGCAGC TTGAGAATTG CCCTCAGTGA ACATCTTAAG CAGCGTCGAG AAGTGGCAAA AACAGTTTTC TGCTTGGTTG TAATTTTTGC TCTTTGCTGG TTCCCTCTTC ATTTAAGCCG TATATTGAAG AAAACTGTGT ATAACGAGAT GGACAAGAAC CGATGTGAAT TACTTAGTTT CTTACTGCTC ATGGATTACA TCGGTATTAA CTTGGCAACC ATGAATTCAT GTATAAACCC CATAGCTCTG TATTTTGTGA GCAAGAAATT TAAAAATTGT TTCCAGTCAT GCCTCTGCTG CTGCTGTTAC CAGTCCAAAA GTCTGATGAC CTCGGTCCCC ATGAACGGAA CAAGCATCCA GTGGAAGAAC CACGATCAAA ACAACCACAA CACAGACCGG AGCAGCCATA AGGACAGCAT GAACTGACCA CCCTTAGAAG CACTCCTCGG TACTCCCATA ATCCTCTCGG AGAAAAAAAT CACAAGGCAA CTGTGAGTCC GGGAATCTCT TCTCTGATCC TTCTTCCTTA ATTCACTCCC ACACCCAAGA AGAAATGCTT TCCAAAACCG CAAGGGTAGA CTGGTTTATC CACCCACAAC ATCTACGAAT CGTACTTCTT TAATTGATCT AATTTACATA TTCTGCGTGT TGTATTCAGC ACTAAAAAAT GGTGGGAGCT GGGGGAGAAT GAAGACTGTT AAATGAAACC AGAAGGATAT TTACTACTTT TGCATGAAAA TAGAGCTTTC AAGTACATGG CTAGCTTTTA TGGCAGTTCT GGTGAATGTT CAATGGGAAC TGGTCACCAT GAAACTTTAG AGATTAACGA CAAGATTTTC TACTTTTTTT AAGTGATTTT TTTGTCCTTC AGCCAAACAC AATATGGGCT CAAGTCACTT TTATTTGAAA TGTCATTTGG TGCCAGTATC CCGAATTC-3'(FRAG. NO:___) (SEQ ID NO:11839)

5'-GCCACCATGG AAACCCTTTG CCTCAGGGCA TCCTTTTGGC TGGCACTGGT TGGATGTGTA ATCAGTGATA ATCCTGAGAG ATACAGCACA AATCTAAGCA ATCATGTGGA TGATTTCACC ACTTTTCGTG GCACAGAGCT CAGCTTCCTG GTTACCACTC ATCAACCCAC TAATTTGGTC CTACCCAGCA ATGGCTCAAT GCACAACTAT TGCCCACAGC AGACTAAAAT TACTTCAGCT TTCAAATACA TTAACACTGT GATATCTTGT ACTATTTTCA TCGTGGGAAT GGTGGGGAAT GCAACTCTGC TCAGGATCAT TTACCAGAAC AAATGTATGA GGAATGGCCC CAACGCGCTG ATAGCCAGTC TTGCCCTTGG AGACCTTATC TATGTGGTCA TTGATCTCCC TATCAATGTA TGGCTGGGCG CTGGCCTTTT GATCACAATG ACTTTGGCGT ATTTCTTTGC AAGCTGTTCC CCTTTTTGCA GAAGTCCTCG GTGGGGATCA CCGTCCTCAA CCTCTGCGCT CTTAGTGTTG ACAGGTACAG AGCAGTTGCC TCCTGGAGTC GTGTTCAGGG AATTGGGATT CCTTTGGTAA CTGCCATTGA AATTGCCTCC ATCTGGATCC TGTCCTTTAT CCTGGCCATT CCTGAAGCGA TTGGCTTCGT CATGGTACCC TTTGAATATA GGGGTGGACA GCATAAAACC TGTATGCTCA ATGCCACATC AAAATTCATG GAGTTCTACC AAGATGTAAA GGACTGGTGG CTCTTCGGGT TCTATTTCTG TATGCCCTTG GTGTGCACTG CGATCTTCTA CACCCTCATG ACTGGTGAGA TGTTGAACAG AAGGAATGGC AGCTTGAGAA TTGCCCTCAG TGAACATCTT AAGCAGCGTC GAGAAGTGGC AAAAACAGTT TTCTGCTTGG TTGTAATTTT TGCTCTTTGC TGGTTCCCTC TTCATTTAAG CCGTATATTG AAGAAAACTG TGTATAACGA GATGGACAAG AACCGATGTG AATTACTTAG TTTCTTACTG CTCATGGATT ACATCGGTAT TAACTTGGCA ACCATGAATT CATGTATAAA CCCCATAGCT CTGTATTTTG TGAGCAAGAA

ATTTAAAAAT TGTTTCCAGT CATGCCTCTG CTGCTGCTGT TACCAGTCCA AAAGTCTGAT GACCTCGGTC CCCATGAACG GAACAAGCAT CCAGTGGAAG AACCACGATC AAAACAACCA CAACACAGAC CGGAGCAGCC ATAAGGACAG CATGAACTGA CCACCCTTAG AAGCACTCCT-3' (FRAG. NO:__) (SEQ ID NO:12486)

Substance P Antisense Nucleic Acids and Oligonucleotide Antisense Oligonucleotide Fragments

5'-CTGCTGBGGC TTGGGTCTCC GGGCGBTTCT CTGCBGBBGB TGCTCBBBGG GCTCCGGCBG TTCCTCCTTG BTCTGGTCGCT GTCGTBCCBG TCGGBCCBGT BBTTCBGBTC BTCBTTGGCT CCTBTTTCTT CTGCBBBCBG CTGBGTGGBG BCBBGBBBBB BGBCTGCCBB GGCCBCGBGG BTTTTCBTGT TGGBTTTTGC GBCGGBCBGT CCCGCGGGGT GCTGAGTTTC TCTGGTTCCT CCGBGCGCBC GTGGTCGCTC CGCGTTTCTC TGGTTCCTCC GGTCCCGCGG GGTGCTGTCT GGTCGCTGTC GTGGCTTGGG TCTCCGGGCG GTTTCCTTCC TTTTCCGC-3' (FRAG. NO:1877) (SEQ ID NO:11259)

5'-CTCC GGGCGB-3' (FRAG. NO:1878) (SEQ ID NO:11260)

5'-GGCCBCGBGG-3' (FRAG. NO:1879) (SEQ ID NO:11261)

5'-GGGTCTCCGGGCG-3' (FRAG. NO:1880) (SEQ ID NO:11262)

5'-GGG TCTCCGGGCG G-3' (FRAG. NO:1881) (SEQ ID NO:11263)

5'-CGTGGTCGCTCCGC-3' (FRAG. NO:1355)(SEQ ID NO:10733)

5'-GTTTCTCTGGTTCCTCCG-3' (FRAG. NO:1356)(SEQ ID NO:10734)

5'-GTCCCGCGGGGTGCTG-3' (FRAG. NO:1357)(SEQ ID NO:10735)

5'-TCTGGTCGCTGTCGT-3' (FRAG. NO:1358)(SEQ ID NO:10736)

5'-GGCTTGGGTCTCCGGGCG-3' (FRAG. NO:1359)(SEQ ID NO:10737)

5'-GTTTCCTTCCTTTTCCGC-3' (FRAG. NO:1360)(SEQ ID NO:10738)

5'-CTGCTGBGGC TTGGGTCTCC GGGCGBTTCT CTGCBGBBGB TGCTCBBBGG GCTCCGGCBG TTCCTCCTTG BTCTGGTCGCT GTCGTBCCBG TCGGBCCBGT BBTTCBGBTC BTCBTTGGCT CCTBTTTCTT CTGCBBBCBG CTGBGTGGBG BCBBGBBBBB BGBCTGCCBB GGCCBCGBGG BTTTTCBTGT TGGBTTTTGC GBCGGBCBGT CCCGCGGGGT GCTGAGTTTC TCTGGTTCCT CCGBGCGCB-3' (FRAG. NO:1882) (SEQ ID NO:11264)

Substance P Receptor Nucleic Acids and Antisense Oligonucleotide Fragments

5'-GGGCTBBGBT GBTCCBCBTC BCTBCCBCGT TGCCCBCCBC BGBGGTCBCC BCBBTGBCCG TGTBGGCBGC TGCCCBBBGG BCBBTTTGCC BGGCTGGTTG CBCGBBCTGB TTGGGTTCCG BGGTGTTBGT GGBGBTGTTT GGGGBGBGGT CTGBGTCCBC CGGGBGGBCG TTBTCCBTTT CGBBGCTBGG CGGTBBBGCC CTBCTBTCTG TBCBCBBCCC CCCTCTGCBG CBGBGTCCTG TCGTGGCGCC TGGGGCTCBG GGTCCGGGC TAAGATGATC CACATCACTA CCACGTTGCC CACCACAGAG GTCACCACAA TGACCGTGTA GGCAGCTGCC CAAAGGACAA TTTGCCAGGC TGGTTGCACG AACTGATTGG GTTCCGAGGT GTTAGTGGAG ATGTTTGGGG AGAGGTCTGA GTCCACCGGG AGGACGTTAT CCATTTCGAA GCTAGGCGGT AAAGCCCTAC TATCTGTACA CAACCCCCCT CTGCAGCAGA GTCCTGTCGT GGCGCCTGGG GCTCAGGGTC CGTCCTGTCG TGGCGCCTGG GGCTCTTCTT TTGTGGGCTC TTTGGTGGCT GTGGCTGTGG TCTCTGTGGT TGCTGCCCTG GGTCTGGGGG TGTGGCCTTG GGGCCGTCCT CTGGCTCCTC CTCGTGGGCC CCC-3' (FRAG. NO:1883) (SEQ ID NO:11265)

5'-GGGBGGBCG-3' (FRAG. NO:1884) (SEQ ID NO:11266)

5'-GGGTC CG-3' (FRAG. NO:1885) (SEQ ID NO:11267)

5-'GGGCC CCC-3' (FRAG. NO:1886) (SEQ ID NO:11268)

5'-GTCCTGTCGTGGCGCCTGGGGCTC-3' (FRAG. NO:1361)(SEQ ID NO:10739)

5'-TTCTTTTGTGGGCT-3' (FRAG. NO:1362)(SEQ ID NO:10740)

5'-CTTTGGTGGCTGTGGCTG-3' (FRAG. NO:1363)(SEQ ID NO:10741)

5'-TGGTCTCTGTGGTTG-3' (FRAG. NO:1364)(SEQ ID NO:10742)

5'-CTGCCCTGGGTCTGG-3' (FRAG. NO:1365)(SEQ ID NO:10743)

5'-GGGTGTGGCCTTGGGGCCGTCCTCTGGCTCCTCCTCGTGGGCCCCC (FRAG.NO:1366)(SEQ ID NO:10744)

5'-GGGCTAAGAT GATCCACATC ACTACCACGT TGCCCACCAC AGAGGTCACC ACAATGACCG TGTAGGCAGC TGCCCAAAGG ACAATTTGCC AGGCTGGTTG CACGAACTGA TTGGGTTCCG AGGTGTTAGT GGAGATGTTT GGGGAGAGGT CTGAGTCCAC CGGGAGGACG TTATCCATTTC GAAGCTAGGC GGTAAAGCCC TACTATCTGTA CACAACCCCC CTCTGCAGCA GAGTCCTGTC GTGGCGCCTG GGGCTCAGGGTCC-3'(FRAG.NO:1367)(SEQ ID NO:10745)

5'-GGGCTBBGBT GBTCCBCBTC BCTBCCBCGT TGCCCBCCBC BGBGGTCBCC BCBBTGBCCG TGTBGGCBGC TGCCCBBBGG BCBBTTTGCC BGGCTGGTTG CBCGBBCTGB TTGGGTTCCG BGGTGTTBGT GGBGBTGTTT GGGGBGBGGTC TGBGTCCBCC GGGBGGBCGT TBTCCBTTTC GBBGCTBGGC GGTBBBGCCC TBCTBTCTGTB CBCBBCCCCC CTCTGCBGCB GBGTCCTGTC GTGGCGCCTG GGGCTCBGGG TCC-3' (FRAG. NO:1368) (SEQ ID NO:10746)

Chymase Antisense Nucleic Acids and Oligonucleotides Antisense Oligonucleotide Fragments

5'-GGBGCTGBTB CTGCBGATTT CBGBGGGBBG BBCCCTGBTB CTCBCCBGCT TCBGCTCTGG BGCBCBBGBG BBBGBGCBGC BGGGGGBGBG GBBGBBGCBG CBTCTTCCCB GBGBGGCTGC CTGBGCBBBT GCTGGTTTTC CTTTCCBGTC TTGGGTTTTB TBBCTCCCBG BBGGCBBGBG BGGGGCBBGG CGTTTTCTTC TCTCGCTGGT TTTCCTTTCC TGGCAGTGGG TGGGGGTGGG GGTGGGGTGG CTTCCTTGTT CCTGGGGGTG TCCTCTTGCT CTGGGCTTTT CTCCCCTTTT CCTTCCTGTC TGTTTTCCTG GGGCTCTCCT CTGTCTCTGT GTCCTTGCCC TGGCCCTCTT CCCTCTCCTG TCTCCTGTCC CTGTGTTCCG CCCGTCTTCC CTCTCCTGAC CTCCTTTTCC TCCGCTGGGT GGGGCCCTGC CTGTTCTCTG CTCCCTGGCT TGGGGTTTCT TCTGTGTGTC TTCTTCCTCT GTTGGCTGGC TTTCTCCTTC TTTTGTCTTC CTGGGTGCCC CTTCTTCCTT TCTTGGGTCC TTGGTGCTTG GGCTGGG TCCCAGTTAA TACATAATCA ATATGCAATT TATTAATACA TCTCTCCATG TCCACTCCCC CTGTATCTTG CCATTCTTGA CCTGCATTTC CATCCTCCTT ACCTTCCCTA GAGGCCAACT CATTTTCTTT GAAAAACCTG GCATTTCCCA GAAAAAAAAG TGAAGGGCTG GGAGCTGTCC GTTGTCCTGA TTTGCTCCCT CTGCCCTTGC TTCCAAATGT GGTTGGAAAG AAGCACTATT GAAAAATCCC TAAACGCACC CCTGCAGGGT TGGCTCTACC CTGTAGCCAT GGACACATGC TGTTGATACC ACCTGCCTCA TGAGTCTCAC ATAATTTGCC CTTTCACACT ATCTACCCCA TCAGCCTTAC CAAAACCATA CCTGCATCCT GGGCAGCATC TGCCCTTCAA GAGACTAAGG AATCTCCTTG CAACCAAGAA TGACTAGACC AATGAGACAC CCTTTAAGGC CCCAGCACAA TATAGAAATC CCACAATATG GTAATCCCAG TAAGGAGCTA TCAAGCCATT GCAGGACCAT CTAGAATACA ACTAGAGTAT AGTTCCTTTC AATCCAGGAA CTATACTCTA ACAGCTTGGC TCACAGGAAC CAGAAGTGAA GATGATGAGG ATCAGGGCTG AGCCTGTGAG CACCAGCTCC ACCACTGACA CCAACCACAG ATTAAACAAG CATCTTGTGG ACCCCTGGGA TGGAAAGAAT AGTTGTTGCC TTATCAACCT CCCCCACAGC CCACACAGAA AAGATAAAAT CATCATGGCT ACAGTGTTAC AGAAGATGAT GACCCAAGGA GTAGGCCTGC CTGAGTGAAT GCTGAGAGTG ATAATGGGAG CAGTAGCATC TCAGAGACTA CAGCAGAAAC CATCCACATA AAGAGCTTTG CCCAAACTTA TGATAAAGGG CACCCTCAGA GACTCTCCCT ACTTTAATAT TAGCCCATTG CAGAAATGGT GAGTGGAAAG AGAAATCTTA GGAAGAACCC CTTAAAAAAG CAAAATGCTT TTTAGGTTTG TGCTGAAGAG CCTGGAAAAG AAATAAGGAC ACACACGCTG AGAAATCTTC CTCCTGCCCC AACACTGGGA TAATCTCCAA GGATCTCTCC ATATCTCATT CTCCTGGATA CACTGTCCAC TCAGAAATAT TGTGCAGAGT GCAGTAATTC AAAAGTGAGC TATTGTGTTA GGAGTGAAGG CAAGAGTATC GTAAAATAAA TCAAATTTGA AATGAATTCT CTTAAATTGC TTTATAGATG TTTAATGTAA

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TGAAATAGCT GACTCCTAAA CAGGGTTCCA AGATCTCTCT TCAAGAGTCC CACAGAGGAA ATTTCCACTT GGGATGTGTG
CCACCCCACC CCCACCCCCA CCCACTGCCA TTCTCTACAG CCTAGGACAC CCCCAGGAAC AAGGAATTTC ACCTCAATTG
TAGAAAAGCC CAGAGCAAGT GGAAGGAAAA GGGGTATCCC CAGGAAAACA GACATGTCCT CTTAATCTTC TGAGCATCAG
GGCTACCCAT TACTTTGTGA CTTTCTCACT CTGTGACCAT GCTCAAGAGC TATGGAGAAA TCTAAAACAG GAACCTGGAC
AGTGGGTCCT ACACAGAGAC AGAGGAGAGT GGGCCAGGGC AAGGTGGGAG TGGGAGAAGT CTGAGATGAA AACATCAGAA
TGGAGCAGAG GCAAGAATGA GATTTCACCT GGGAGGTTAT GGGTGGGGAA AGATACGAAA TACAGGAGAC AGGAGAGGGA
AGATGGGCGG AACACAGGGT GAGAATGAGA TTCCAGGGAA GCCTAGCTCA GCTTTAACCC AATTTGTCCA TTCATTGGAG
AGAGTATCTA TGGCCGTGTT CAAACCCTGG GGTGCTCTGT TCCAGGGGAG ATCATCGGGG GCACAGAATG CAAGCCACAT
TCCCGCCCCT ACATGGCCTA CCTGGAAATT GTAACTTCCA ACGGTCCCTC AAAATTTTGT GGTGGTTTCC TTATAAGACG
GAACTTTGTG CTGACGGCTG CTCATTGTGC AGGAAGGTGA GACAACAGGG TCTATTTATC TCCAAATGGG AGATGAACAA
CCAGAGTAGC ATCCAGGAAT ACACCTGCAC TGGGGACTGA AGAGGGGGTC CTGGGTCTTG TCAACTTTCA GGAGAGGGAA
GACTTTGGGC TGAAAGACTT TAGTCTGTGT TTGAATAGTT CCTTGAGCCT CAGTCACTGA GCTAAGCTCC CTTCGGAGGA
AAAGGAGGTC CTGTCCGAAG GTCCCTCTTG TTGCAGTAGC ACCCCTCACC CCTACCCAAC TCAAGACACA CGGCTCACTT
TTCAGGGCCC CACCCAGTCT CAGGGCCACT TCCTCTATGG CCTTTTCAAG AACACTGGCT CTAGTTCTCA GGGTCCTGAA
CCCATCATTT TATGGGAGCA GAGAACAGGT CTACATAAGA CCCCCACTTT CCCGTTTTAA CTGATATCTC CTGCTTCAGG
GGCTGGCCCT CATGCAGGGT TCCCTGAATT AGGAAGTGTG AACCCTGTCC CCTGAGTCCT CCCTGGCCTG TTCAGTCCCC
AGCAATTCCA GGGGTCGTAG AAATTGTGTC TGTTTCCTGA GAAAGCTCTT TCATGAGTTA AGCCTGAGCC CTCAAATGCC
ACAAGTGGCC CATGAAAAGG GAGATGGGTA GAGTCCGGCN ACCCAGTGAC AGAGTTTAGT CCTCTTTTCT CAGAATGAGC
TCACCTCAGA AGAAACCCCA AGCCATCACT GTCGCCTCCT TTTCCTTCCT TCTTCCTCAC AGCAGGTCTA TAACAGTCAC
CCTTGGAGCC CATAACATAA CAGAGGAAGA AGACACATGG CAGAAGCTTG AGGTTATAAA GCAATTCCGT CATCCAAAAT
ATAACACTTC TACTCTTCAC CACGATATCA TGTTACTAAA GGTGACAACA CCTCTCTTCT CCCTTTCCAC TTCCCATTCT
CCTAAGCTTC TCCTTCAGGT CCTCATTGCC CTGAATTTTT CTTAGGACTT GGCTATAACA TGAAGCTACT CACCCTGTCC
CTCCCTGATC ACCTCCAACT GTCCAGAGCC CATTTCGAGG ACTGACAGTC CTTCATTCCC TTCACAGTTG AAGGAGAAAG
CCAGCCTGAC CCTGGCTGTG GGGACACTCC CCTTCCCATC ACAATTCAAC TTTGTCCCAC CTGGGAGAAT GTGCCGGGTG
GCTGGCTGGG GAAGAACAGG TGTGTTGAAG CCGGGCTCAG ACACTCTGCA AGAGGTGAAG CTGAGACTCA TGGATCCCCA
GGCCTGCAGC CACTTCAGAG ACTTTGACCA CAATCTTCAG CTGTGTGTGG GCAATCCCAG GAAGACAAAA TCTGCATTTA
AGGTGATCCT CCAACTAGGT TTCCTCTCCA AAACTCACTG TTCAGGGACC TGAATGCTCT TAGAAGGAGA TGGGGTCAGC
AGGTTGTCAG TCAGGTGACA GGGTGAGCAT CACAGGAATT GCTGTCCTCC CGTGGTCCAA GACAGCCTCT GACCATCCAT
TCCAGTCTAC TGCACTGGGG GCATGGGGTG ACTGTGGAGA ATGTGGATGA CGGTCCCAAG AAAGGAAGAA GGGGCATCAG
AACTAGATGT ATAAGTGAGG AGCTCCACCT CCTGGGTCTG ACTTTAGGTC TCACTGTGAC TCCAAGCTGG CTGGCAGACA
GGAGTGGAGG ACTTCCCGGG CTCACCTTCT TCTCTCTCTC CTCCCCCTAC AGGGAGACTC TGGGGGCCCT CTTCTGTGTG
CTGGGGTGGC CCAGGGCATC GTATCCTATG GACGGTCGGA TGCAAAGCCC CCTGCTGTCT TCACCCGAAT CTCCCATTAC
CGGCCCTGGA TCAACCAGAT CCTGCAGGCA AATTAATCCT GGATCCTGAG CCAGCCTGAA GGGAAGCTGG AACTGGACCT
TAGCAGCAAA GTGTGTGCAA CTCATTCTGG TTCTACCCTT GGTTCCCTCA GCCACAACCC TAAGCCTCCA AGAGGTCTCC
TACAGGTAAC AGAACTTTCA ATAAACTTCA GTGAAGACAC AGCTTCTAGT CGTGAGTGTG TGTCCCTCTC TGCTGCTCTC
TTCTCCTGCA CATGTGACCT GATTCCCAGC CCAAGCACCA AGGA-3' (FRAG. NO:) (SEQ ID NO:11836)

5'-GGBGCBCBBG-3' (FRAG. NO:1888) (SEQ ID NO:11270)

5'-GBBGCBGC-3' (FRAG. NO:1889) (SEQ ID NO:11271)

5'-GGGGCBBGG CG-3' (FRAG. NO:1890) (SEQ ID NO:11272)

5'-CGTTTTCTTCTCTC-3' (FRAG. NO:1369)(SEQ ID NO:10747)

5'-GCTGGTTTTCCTTTCC-3' (FRAG. NO:1370)(SEQ ID NO:10748)

5'-TGGCAGTGGGTGGGGGTGGGGGTGGGGTGGC-3' (FRAG. NO:1371)(SEQ ID NO:10749)

5'-TTCCTTGTTCCTGGGGGTGTCCT-3' (FRAG. NO:1372)(SEQ ID NO:10750)

5'-CTTGCTCTGGGCTTTTCT-3' (FRAG. NO:1373)(SEQ ID NO:10751)

5'-CCCCTTTTCCTTCC-3' (FRAG. NO:1374)(SEQ ID NO:10752) [

5'-TGTCTGTTTTCCTGGGG-3' (FRAG. NO:1375)(SEQ ID NO:10753)

5'-CTCTCCTCTGTCTCTGTGT-3' (FRAG. NO:1376)(SEQ ID NO:10754)

5'-CCTTGCCCTGGCCC-3' (FRAG. NO:1377)(SEQ ID NO:10755)

5'-TCTTCCCTCTCCTGTCTCCTGT-3' (FRAG. NO:1378)(SEQ ID NO:10756)

5'-CCCTGTGTTCCGCCC-3' (FRAG. NO:1379)(SEQ ID NO:10757)

5'-GTCTTCCCTCTCCTG-3' (FRAG. NO:1380)(SEQ ID NO:10758)

5'-ACCTCCTTTTCCTCCG-3' (FRAG. NO:1381)(SEQ ID NO:10759)

5'-CTGGGTGGGGCCCTG-3' (FRAG. NO:1382)(SEQ ID NO:10760)

5'-CCTGTTCTCTGCTCCC-3' (FRAG. NO:1383)(SEQ ID NO:10761)

5'-TGGCTTGGGGTTTCTTCTG-3' (FRAG. NO:1384)(SEQ ID NO:10762)

5'-TGTGTCTTCTTCCTCTGTT-3' (FRAG. NO:1385)(SEQ ID NO:10763)
5'-GGCTGGCTTTCTCCTTC-3' (FRAG. NO:1386)(SEQ ID NO:10764)
5'-TTTTGTCTTCCTGGG-3' (FRAG. NO:1387)(SEQ ID NO:10765) [1397)]
5'-TGCCCCTTCTTCCTTTCTTGGG-3' (FRAG. NO:1388)(SEQ ID NO:10766)
5'-TCCTTGGTGCTTGGGCTGGG-3' (FRAG. NO:1389)(SEQ ID NO:10767)
5'-GGBGCTGBTB CTGCBGATTT CBGBGGGBBG BBCCCTGBTB CTCBCCBGCT TCBGCTCTGG BGCBCBBGBG BBBGBGCBGC BGGGGGBGBG GBBGBBGCBG CBTCTTCCCB GBGBGGCTGC CTGBGCBBBT GCTGGTTTTC CTTTCCBGTC TTGGGTTTTB TBBCTCCCBG BBGGCBBGBG BGGGGCBBGG-3' (FRAG.NO:1891) (SEQ ID NO:11273)

Endothelial Nitric Oxide Synthase Nucleic Acids and Antisense Oligonucleotide Fragments

5'-GCGTCTTGGG GTGCBGGGCC CBTCCTGCTG CGCCTGGGCG CTGCTGTGCG TCCGTCTGCT GGGGGGCCGG GGTGGCTGGG CCCTGCTTGC CGCACGACCC CGGGCCGACC CGAGGCTCGG GGGGCTGTGT TCTGGCGCTG GTGGGCTTGG GCCCCTCTGG GGGCTGGGTT TCCTGCTGCG CCTGGGCGCT GGCGTCTTGG GGTGCGGGGC CGGGGGGCCG GGGGGCCGCT GTTCGTGGGC CTGGGGGTGC CTGTGGCTGC CGGTTGCCCC GGTTGGTGGC GCCGTCCTGC TGCCGGTCGT TGGCTGGGTC CCCCCGCCCG TTTCCTGGGG TCCGCGTGGG GTGCTCCGGT TCCTCGTGCC GCTGCTGCCT TGTCTTTCCG GCCGTGGCGG CGTGGTGGTC CGCCCCCCCT GGCCTTCTGC TCGGGGTCTG GCTGGTTGCC GGTGCCCTTG GCGGCGGTCT TCTTCCTGGT GGCTCTGGGC CCGGCCGGTC TCGGGCGTCT CGTGTTCGCT CTTGTGCTGT TCCGGCCGCT CCTTCCTCTT CCGCCGCCGC CGCTCCCCGC CCGCTCGTCG CCCTGGCCCG GCCTCCTCCT GGCCGCTGTC TCGGGCGGCG GCCTTGGCGC TCCGTTTGGG GCTGCCTCTG GCGCTTCCGG CCCTCGGCCT GGGCGCTCTC TTCCGCCTGT GCTGGTGGCC CTCGTGGGCC CCTCCTGGCC TCCGGTGTCC TGTGGTCCCC CGGCTGGTGG CCGGGCCGGT TGGGCGGGCG TGGGCGCCGG CGGGTCCTCC GGGCTGCCCT TCTCCGCCGG GGGTCCCGCG CTCCTGCTGT TCCCTGGGCT CTTCTGCCTC TCTCCTGGGT GGGTGCTGGG TGCCGGGGTC TCCGGGCTTG CCCCGCGCTG CTGGGCGTTC TGCGGTCTTG GGGTTGTCTG TGGCCCCGCT CGTGTCGCCC TCCGTCGCCC GTCGCCGGCC TCGTCCCCTC CTGGGTGCGC GGCGGGCTGG TCCTGGCGTT TTGCTCCTTC CTGGGCGTCT TGGGGTGCBG GGCCCBTCCT GCTGCGCCTG GGCGCTGCTG TGCGTCCGTC TGCTGGGGGG CCGGGGTGGC TGGGCCCTGC TTGCCGCACG ACCCCGGGCC GACCCGAGGC TCGGGGGGCT GTGTTCTGGC GCTGGTGGGC TTGGGCCCCT CTGGGGGCTG GGTTTCCTGC TGCGCCTGGG CGCTGGCGTC TTGGGGTGCG GGGCCGGGGG GCCGGGGGGC CGCTGTTCGT GGGCCTGGGG GTGCCTGTGG CTGCCGGTTG CCCCGGTTGG TGGCGCCGTC CTGCTGCCGG TCGTTGGCTG GGTCCCCCCG CCCGTTTCCT GGGGTCCGCG TGGGGTGCTC CGGTTCCTCG TGCCGCTGCT GCCTTGTCTT TCCGGCCGTG GCGGCGTGGT GGTCCGCCCC CCCTGGCCTT CTGCTCGGGG TCTGGCTGGT TGCCGGTGCC CTTGGCGGCG GTCTTCTTCC TGGTGGCTCT GGGCCCGGCC GGTCTCGGGC GTCTCGTGTT CGCTCTTGTG CTGTTCCGGC CGCTCCTTCC TCTTCCGCCG CCGCCGCTCC CCGCCCGCTC GTCGCCCTGG CCCGGCCTCC TCCTGGCCGC TGTCTCGGGC GGCGGCCTTG GCGCTCCGTT TGGGGCTGCC TCTGGCGCTT CCGGCCCTCG GCCTGGGCGC TCTCTTCCGC CTGTGCTGGT GGCCCTCGTG GGCCCCTCCT GGCCTCCGGT GTCCTGTGGT CCCCCGGCTG GTGGCCGGGC CGGTTGGGCG GGCGTGGGCG CCGGCGGGTC CTCCGGGCTG CCCTTCTCCG CCGGGGGTCC CGCGCTCCTG CTGTTCCCTG GGCTCTTCTG CCTCTCTCCT GGGTGGGTGC TGGGTGCCGG GGTCTCCGGG CTTGCCCCGC GCTGCTGGGC GTTCTGCGGT CTTGGGGTTG TCTGTGGCCC CGCTCGTGTC GCCCTCCGTC GCCCGTCGCC GGCCTCGTCC CCTCCTGGGT GCGCGGCGGG CTGGTCCTGG CGTTTTGCTC CTTCCTGG-3' (FRAG. NO:1892) (SEQ ID NO:11274)
5'-GCGGGGCCG-3' (FRAG. NO:1893) (SEQ ID NO:11275)
5'-CGGGGGGC-3' (FRAG. NO:1894) (SEQ ID NO:11276)
5'-GCGCGGCGGGC-3' (FRAG. NO:1895) (SEQ ID NO:11277)
5'-CTGTGCGTCCGTCTGCTGG (FRAG. NO:1390)(SEQ ID NO:10768)
GGGGCCGGGGTGGCTGGGCCCTGCTTGCCGC (FRAG. NO:1391)(SEQ ID NO:10769)
ACGACCCCGGGCCGACCCGAG (FRAG. NO:1392)(SEQ ID NO:10770)
GCTCGGGGGGCTGTGTTCTGGCGCTGGTGGG (FRAG. NO:1393)(SEQ ID NO:10771)
CTTGGGCCCCTCTGGGGGCTGGGTT (FRAG. NO:1394)(SEQ ID NO:10772)
TCCTGCTGCGCCTGGGCGCTG (FRAG. NO:1395)(SEQ ID NO:10773)
GCGTCTTGGGGTGC (FRAG. NO:1396)(SEQ ID NO:10774)
GGGGCCGGGGGGCCGGGGG (FRAG. NO:1397)(SEQ ID NO:10775)
GCCGCTGTTCGTGGGCCTGGG (FRAG. NO:1398)(SEQ ID NO:10776)
GGTGCCTGTGGCTGCC (FRAG. NO:1399)(SEQ ID NO:10777)
GGTTGCCCCGGTTGGTGGC (FRAG. NO:1400)(SEQ ID NO:10778)
GCCGTCCTGCTGCCGGT (FRAG. NO:1401)(SEQ ID NO:10779)
CGTTGGCTGGGTCCCCCCGC (FRAG. NO:1402)(SEQ ID NO:10780)
CCGTTTCCTGGGGTCC (FRAG. NO:1403)(SEQ ID NO:10781)
GCGTGGGGTGCTCC (FRAG. NO:1404)(SEQ ID NO:10782)
GGTTCCTCGTGCCG (FRAG. NO:1405)(SEQ ID NO:10783)
CTGCTGCCTTGTCTTTCC (FRAG. NO:1406)(SEQ ID NO:10784)
GGCCGTGGCGGCGTGGTGGTCC (FRAG. NO:1407)(SEQ ID NO:10785)
GCCCCCCCTGGCCTTCTGCTC (FRAG. NO:1408)(SEQ ID NO:10786)
GGGGTCTGGCTGGT (FRAG. NO:1409)(SEQ ID NO:10787)
TGCCGGTGCCCTTGGCGGC (FRAG. NO:1410)(SEQ ID NO:10788)
GGTCTTCTTCCTGGTG (FRAG. NO:1411)(SEQ ID NO:10789)
GCTCTGGGCCCGGCCGGTCTCGG (FRAG. NO:1412)(SEQ ID NO:10790)
GCGTCTCGTGTTCG (FRAG. NO:1413)(SEQ ID NO:10791)
CTCTTGTGCTGTTCCGGCCG (FRAG. NO:1414)(SEQ ID NO:10792)
CTCCTTCCTCTTCCGCCGCC (FRAG. NO:1415)(SEQ ID NO:10793)
GCCGCTCCCCGCCC (FRAG. NO:1416)(SEQ ID NO:10794)
GCTCGTCGCCCTGGCCC (FRAG. NO:1417)(SEQ ID NO:10795)
GGCCTCCTCCTGGCCGC (FRAG. NO:1418)(SEQ ID NO:10796)
TGTCTCGGGCGGCGGCCTTGGC (FRAG. NO:1419)(SEQ ID NO:10797)
GCTCCGTTTGGGGCTG (FRAG. NO:1420)(SEQ ID NO:10798)
CCTCTGGCGCTTCC (FRAG. NO:1421)(SEQ ID NO:10799)
GGCCCTCGGCCTGGGCGCTC (FRAG. NO:1422)(SEQ ID NO:10800)
TCTTCCGCCTGTGC (FRAG. NO:1423)(SEQ ID NO:10801)
TGGTGGCCCTCGTGG (FRAG. NO:1424)(SEQ ID NO:10802)
GCCCCTCCTGGCCTCCGGTGTCC (FRAG. NO:1425)(SEQ ID NO:10803)
TGTGGTCCCCCGGCTGGT (FRAG. NO:1426)(SEQ ID NO:10804)

GGCCGGGCCGGTTGGGCGGGC (FRAG. NO:1427)(SEQ ID NO:10805)
GTGGGCGCCGGCGGGTCCTCC (FRAG. NO:1428)(SEQ ID NO:10806)
GGGCTGCCCTTCTCC (FRAG. NO:1429)(SEQ ID NO:10807)
GCCGGGGGTCCCGC (FRAG. NO:1430)(SEQ ID NO:10808)
GCTCCTGCTGTTCCCTGGGCTCTTCTGCC (FRAG. NO:1431)(SEQ ID NO:10809)
TCTCTCCTGGGTGGGTGCTGGGTGCCG (FRAG. NO:1432)(SEQ ID NO:10810)
GGGTCTCCGGGCTTG (FRAG. NO:1433)(SEQ ID NO:10811)
CCCCGCGCTGCTGGGCGTTCTGC (FRAG. NO:1434)(SEQ ID NO:10812)
GGTCTTGGGGTTGTC (FRAG. NO:1435)(SEQ ID NO:10813)
TGTGGCCCCGCTCG (FRAG. NO:1436)(SEQ ID NO:10814)
TGTCGCCCTCCGTCGCC (FRAG. NO:1437)(SEQ ID NO:10815)
CGTCGCCGGCCTCGTCC (FRAG. NO:1438)(SEQ ID NO:10816)
CCTCCTGGGTGCGC (FRAG. NO:1439)(SEQ ID NO:10817)
GGCGGGCTGGTCCT (FRAG. NO:1440)(SEQ ID NO:10818)
GGCGTTTTGCTCCTTCCTGG (FRAG. NO:1441)(SEQ ID NO:10819)
5'-GCGTCTTGGGGTGCBGGGCCCBTCCTGCTGCGCCTGGGCGCTG-3'(FRAG. NO:1896) (SEQ ID NO:11278)

Inducible Nitric Oxide Synthase Nucleic Acids and Antisense Oligonucleotide Fragments

5'-CTGCCCCBGT TTTTGBTCCT CBCBTGCCGT GGGGBGGBCB BTGGCTGCCT CCCCGGGGTT TCTGCTGCTT GCTGCTTCTT
TCCCGTCTCC CTTCTTTCCC GTCTCCTTTT TGCCTCTTTG GGTTCCTGTT GTTTCTGGCC TGCTTGGTGG CGGCTTGTGC
GTTTCCTCTC TCTTCTCTTG GGTCTCCGCT TCTCGTCCTG CCTTTTCCTG TCTCTGTCGC GCCGTTCCTC CTCCGGCGTC
CTCCTGCCCT GTGCTGTTTG CCTCGGGTGG TGCGGGTCCC GGTGCTCCCC CGGCGGGCCG GCTGGTTGCC TGGGCCTGTC
TGGTGGGGTG TGGGGCCGCT GGGTTGGGGG TGTGGTGGGC TCTTCTGTGG CCTGTGGGGC TGTTGGTGTC TCTGTGGGCG
TGTGCTGGGT CTTGGGGCTT CCTCCCTTGT GCTGGGTGCG GCCTCCCCGC CCCCCTTCTG GGCCGGTGGC CTGGCTCCTT
GTGGGCGCTT CTGGCTCTTG CCCTGTCCTT CTTCGCCTCG TGGCTGCTGG GCTGC CATATGTATG GGAATACTGT
ATTTCAGGCA TTATAAGGAA TGAAATTATA GGCCGGGCAT TGTGGCTAAC CCTTGTAATC CTAGCACTTT GAGAGGCTGA
AGTGGGCAGA TCACTTGAGC TTCAGAGTTC GAGACCAGCA TGGACAACAT GGTGAAACCC AGTCTCTACC AAAAACACAA
AAATATTAGC TGGGTGTGGT GGTGCATGCC TGTAGTCCCA GCTACTCAGG AGGCTGAGGT GGGAGGATCG CTTGAGCCTG
GGAGGCAGAA GTTGCAATGA GCAGAGATCG TGCCACTCCG CTCCAGTCTT GGTGACAGAA TGAGACTCCA TCTCAAAAAT
AAATAAATAA ATAAATAAAA TAAATGAAAT GAAATTATAA GAAATTACCA CTTTTTCATG TAAGAAGTGA TCATTTCCAT
TATAAGGGAA GGAATTTAAT CCTACCTGCC ATTCCACCAA AGCTTACCTA GTGCTAAAGG ATGAGGTGTT AGTAAGACCA
ACATCTCAGA GGCCTCTCTG TGCCAATAGC CTTCCTTCCT TTCCCTTCCA AAAACCTCAA GTGACTAGTT CAGAGGCCTG
TCTGGAATAA TGGCATCATC TAATATCACT GGCCTTCTGG AACCTGGGCA TTTTCCAGTG TGTTCCATAC TGTCAATATT
CCCCCAGCTT CCTGGACTCC TGTCACAAGC TGGAAAAGTG AGAGGATGGA CAGGGATTAA CCAGAGAGCT CCCTGCTGAG
GAAAAAATCT CCCAGATGCT GAAAGTGAGG CCATGTGGCT TGGCCAAATA AAACCTGGCT CCGTGGTGCC TCTGTCTTAG
CAGCCACCCT GCTGATGAAC TGCCACCTTG GACTTGGGAC CAGAAAGAGG TGGGTTGGGT GAAGAGGCAC CACACAGAGT
GATGTAACAG CAAGATCAGG TCACCCACAG GCCCTGGCAG TCACAGTCAT AAATTAGCTA ACTGTACACA AGCTGGGGAC
ACTCCCTTTG GAAACCAAAA AAAAAAAAAA AAAAAAGAGA CCTTTATGCA AAAACAACTC TCTGGATGGC ATGGGGTGAG
TATAAATACT TCTTGGCTGC CAGTGTGTTC ATAACTTTGT AGCGAGTCGA AAACTGAGGC TCCGGCCGCA GAGAACTCAG
CCTCATTCCT GCTTTAAAAT CTCTCGGCCA CCTTTGATGA GGGGACTGGG CAGTTCTAGA CAGTCCCGAA GTTCTCAAGG
CACAGGTCTC TTCCTGGTTT GACTGTCCTT ACCCCGGGGA GGCAGTGCAG CCAGCTGCAA GGTGAGTTGC C CATATGTATG
GGAATACTGT ATTTCAGGCA TTATAAGGAA TGAAATTATA GGCCGGGCAT TGTGGCTAAC CCTTGTAATC CTAGCACTTT
GAGAGGCTGA AGTGGGCAGA TCACTTGAGC TTCAGAGTTC GAGACCAGCA TGGACAACAT GGTGAAACCC AGTCTCTACC
AAAAACACAA AAATATTAGC TGGGTGTGGT GGTGCATGCC TGTAGTCCCA GCTACTCAGG AGGCTGAGGT GGGAGGATCG
CTTGAGCCTG GGAGGCAGAA GTTGCAATGA GCAGAGATCG TGCCACTCCG CTCCAGTCTT GGTGACAGAA TGAGACTCCA
TCTCAAAAAT AAATAAATAA ATAAATAAAA TAAATGAAAT GAAATTATAA GAAATTACCA CTTTTTCATG TAAGAAGTGA
TCATTTCCAT TATAAGGGAA GGAATTTAAT CCTACCTGCC ATTCCACCAA AGCTTACCTA GTGCTAAAGG ATGAGGTGTT
AGTAAGACCA ACATCTCAGA GGCCTCTCTG TGCCAATAGC CTTCCTTCCT TTCCCTTCCA AAAACCTCAA GTGACTAGTT
CAGAGGCCTG TCTGGAATAA TGGCATCATC TAATATCACT GGCCTTCTGG AACCTGGGCA TTTTCCAGTG TGTTCCATAC
TGTCAATATT CCCCCAGCTT CCTGGACTCC TGTCACAAGC TGGAAAAGTG AGAGGATGGA CAGGGATTAA CCAGAGAGCT
CCCTGCTGAG GAAAAAATCT CCCAGATGCT GAAAGTGAGG CCATGTGGCT TGGCCAAATA AAACCTGGCT CCGTGGTGCC
TCTGTCTTAG CAGCCACCCT GCTGATGAAC TGCCACCTTG GACTTGGGAC CAGAAAGAGG TGGGTTGGGT GAAGAGGCAC
CACACAGAGT GATGTAACAG CAAGATCAGG TCACCCACAG GCCCTGGCAG TCACAGTCAT AAATTAGCTA ACTGTACACA
AGCTGGGGAC ACTCCCTTTG GAAACCAAAA AAAAAAAAAA AAAAAAGAGA CCTTTATGCA AAAACAACTC TCTGGATGGC
ATGGGGTGAG TATAAATACT TCTTGGCTGC CAGTGTGTTC ATAACTTTGT AGCGAGTCGA AAACTGAGGC TCCGGCCGCA
GAGAACTCAG CCTCATTCCT GCTTTAAAAT CTCTCGGCCA CCTTTGATGA GGGGACTGGG CAGTTCTAGA CAGTCCCGAA
GTTCTCAAGG CACAGGTCTC TTCCTGGTTT GACTGTCCTT ACCCCGGGGA GGCAGTGCAG CCAGCTGCAA GGTGAGTTGC C-3'
(FRAG. NO:_)(SEQ ID NO:12385)

5'-CTGCTTTAAA ATCTCTCGGC CACCTTTGAT GAGGGGACTG GGCAGTTCTA GACAGTCCCG AAGTTCTCAA GGCACAGGTC
TCTTCCTGGT TTGACTGTCC TTACCCCGGG GAGGCAGTGC AGCCAGCTGC AAGCCCCACA GTGAAGAACA TCTGAGCTCA
AATCCAGATA AGTGACATAA GTGACCTGCT TTGTAAAGCC ATAGAGATGG CCTGTCCTTG GAAATTTCTG TTCAAGACCA
AATTCCACCA GTATGCAATG AATGGGGAAA AAGACATCAA CAACAATGTG GAGAAAGCCC CCTGTGCCAC CTCCAGTCCA
GTGACACAGG ATGACCTTCA GTATCACAAC CTCAGCAAGC AGCAGAATGA GTCCCCGCAG CCCCTCGTGG AGACGGGAAA
GAAGTCTCCA GAATCTCTGG TCAAGCTGGA TGCAACCCCA TTGTCCTCCC CACGGCATGT GAGGATCAAA AACTGGGGCA
GCGGGATGAC TTTCCAAGAC ACACTTCACC ATAAGGCCAA AGGGATTTTA ACTTGCAGGT CCAAATCTTG CCTGGGGTCC
ATTATGACTC CCAAAAGTTT GACCAGAGGA CCCAGGGACA AGCCTACCCC TCCAGATGAG CTTCTACCTC AAGCTATCGA
ATTTGTCAAC CAATATTACG GCTCCTTCAA AGAGGCAAAA ATAGAGGAAC ATCTGGCCAG GGTGGAAGCG GTAACAAAGG
AGATAGAAAC AACAGGAACC TACCAACTGA CGGGAGATGA GCTCATCTTC GCCACCAAGC AGGCCTGGCG CAATGCCCCA
CGCTGCATTG GGAGGATCCA GTGGTCCAAC CTGCAGGTCT TCGATGCCCG CAGCTGTTCC ACTGCCCGGG AAATGTTTGA
ACACATCTGC AGACACGTGC GTTACTCCAC CAACAATGGC AACATCAGGT CGGCCATCAC CGTGTTCCCC CAGCGGAGTG
ATGGCAAGCA CGACTTCCGG GTGTGGAATG CTCAGCTCAT CCGCTATGCT GGCTACCAGA TGCCAGATGG CAGCATCAGA
GGGGACCCTG CCAACGTGGA ATTCACTCAG CTGTGCATCG ACCTGGGCTG GAAGCCCAAG TACGGCCGCT TCGATGTGGT
CCCCCTGGTC CTGCAGGCCA ATGGCCGTGA CCCTGAGCTC TTCGAAATCC CACCTGACCT TGTGCTTGAG GTGGCCATGG
AACATCCCAA ATACGAGTGG TTTCGGGAAC TGGAGCTAAA GTGGTACGCC CTGCCTGCAG TGGCCAACAT GCTGCTTGAG
GTGGGCGGCC TGGAGTTCCC AGGGTGCCCC TTCAATGGCT GGTACATGGG CACAGAGATC GGAGTCCGGG ACTTCTGTGA
CGTCCAGCGC TACAACATCC TGGAGGAAGT GGGCAGGAGA ATGGGCCTGG AAACGCACAA GCTGGCCTCG CTCTGGAAAG

ACCAGGCTGT CGTTGAGATC AACATTGCTG TGATCCATAG TTTTCAGAAG CAGAATGTGA CCATCATGGA CCACCACTCG
GCTGCAGAAT CCTTCATGAA GTACATGCAG AATGAATACC GGTCCCGTGG GGGCTGCCCG GCAGACTGGA TTTGGCTGGT
CCCTCCCATG TCTGGGAGCA TCACCCCCGT GTTTCACCAG GAGATGCTGA ACTACGTCCT GTCCCCTTTC TACTACTATC
AGGTAGAGGC CTGGAAAACC CATGTCTGGC AGGACGAGAA GCGGAGACCC AAGAGAAGAG AGATTCCATT GAAAGTCTTG
GTCAAAGCTG TGCTCTTTGC CTGTATGCTG ATGCGCAAGA CAATGGCGTC CCGAGTCAGA GTCACCATCC TCTTTGCGAC
AGAGACAGGA AAATCAGAGG CGCTGGCCTG GGACCTGGGG GCCTTATTCA GCTGTGCCTT CAACCCCAAG GTTGTCTGCA
TGGATAAGTA CAGGCTGAGC TGCCTGGAGG AGGAACGGCT GCTGTTGGTG GTGACCAGTA CGTTTGGCAA TGGAGACTGC
CCTGGCAATG GAGAGAAACT GAAGAAATCG CTCTTCATGC TGAAAGAGCT CAACAACAAA TTCAGGTACG CTGTGTTTGG
CCTCGGCTCC AGCATGTACC CTCGGTTCTG CGCCTTTGCT CATGACATTG ATCAGAAGCT GTCCCACCTG GGGGCCTCTC
AGCTCACCCC GATGGGAGAA GGGGATGAGC TCAGTGGGCA GGAGGACGCC TTCCGCAGCT GGGCCGTGCA AACCTTCAAG
GCAGCCTGTG AGACGTTTGA TGTCCGAGGC AAACAGCACA TTCAGATCCC CAAGCTCTAC ACCTCCAATG TGACCTGGGA
CCCGCACCAC TACAGGCTCG TGCAGGACTC ACAGCCTTTG GACCTCAGCA AAGCCCTCAG CAGCATGCAT GCCAAGAACG
TGTTCACCAT GAGGCTCAAA TCTCGGCAGA ATCTACAAAG TCCGACATCC AGCCGTGCCA CCATCCTGGT GGAACTCTCC
TGTGAGGATG GCCAAGGCCT GAACTACCTG CCGGGGGAGC ACCTTGGGGT TTGCCCAGGC AACCAGCCGG CCCTGGTCCA
AGGCATCCTG GAGCGAGTGG TGGATGGCCC CACACCCCAC CAGACAGTGC GCCTGGAGGA CCTGGATGAG AGTGGCAGCT
ACTGGGTCAG TGACAAGAGG CTGCCCCCCT GCTCACTCAG CCAGGCCCTC ACCTACTCCC CGGACATCAC CACACCCCCA
ACCCAGCTGC TGCTCCAAAA GCTGGCCCAG GTGGCCACAG AAGAGCCTGA GAGACAGAGG CTGGAGGCCC TGTGCCAGCC
CTCAGAGTAC AGCAAGTGGA AGTTCACCAA CAGCCCCACA TTCCTGGAGG TGCTAGAGGA GTTCCCGTCC CTGCGGGTGT
CTGCTGGCTT CCTGCTTTCC CAGCTCCCCA TTCTGAAGCC CAGGTTCTAC TCCATCAGCT CCTCCCGGGA TCACACGCCC
ACGGAGATCC ACCTGACTGT GGCCGTGGTC ACCTACCACA CCGGAGATGG CCAGGGTCCC CTGCACCACG GTGTCTGCAG
CACATGGCTC AACAGCCTGA AGCCCCAAGA CCCAGTGCCC TGCTTTGTGC GGAATGCCAG CGCCTTCCAC CTCCCCGAGG
ATCCCTCCCA TCCTTGCATC CTCATCGGGC CTGGCACAGG CATCGTGCCC TTCCGCAGTT TCTGGCAGCA ACGGCTCCAT
GACTCCCAGC ACAAGGGAGT GCGGGGAGGC CGCATGACCT TGGTGTTTGG GTGCCGCCGC CCAGATGAGG ACCACATCTA
CCAGGAGGAG ATGCTGGAGA TGGCCCAGAA GGGGGTGCTG CATGCGGTGC ACACAGCCTA TTCCCGCCTG CCTGGCAAGC
CCAAGGTCTA TGTTCAGGAC ATCCTGCGGC AGCAGCTGGC CAGCGAGGTG CTCCGTGTGC TCCACAAGGA GCCAGGCCAC
CTCTATGTTT GCGGGGATGT GCGCATGGCC CGGGACGTGG CCCACACCCT GAAGCAGCTG GTGGCTGCCA AGCTGAAATT
GAATGAGGAG CAGGTCGAGG ACTATTTCTT TCAGCTCAAG AGCCAGAAGC GCTATCACGA AGATATCTTC GGTGCTGTAT
TTCCTTACGA GGCGAAGAAG GACAGGGTGG CGGTGCAGCC CAGCAGCCTG GAGATGTCAG CGCTCTGAGG GCCTACAGGA
GGGGTTAAAG CTGCCGGCAC AGAACTTAAG GATGGAGCCA GCTCTGCATT ATCTGAGGTC ACAGGGCCTG GGGAGATGGA
GGAAAGTGAT ATCCCCCAGC CTCAAGTCTT ATTTCCTCAA CGTTGCTCCC CATCAAGCCC TTTACTTGAC CTCCTAACAA
GTAGCACCCT GGATTGATCG GAGCCTCCTC TCTCAAACTG GGGCCTCCCT GGTCCCTTGG AGACAAAATC TTAAATGCCA
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GCTCCAGCAG ACGGACGCAC AGTAACATGG GCAACTTGAA GAGCGTGGCC CAGGAGCCTG GGCCACCCTG CGGCCTGGGG
CTGGGGCTGG GCCTTGGGCT GTGCGGCAAG CAGGGCCCAG CCACCCCGGC CCCTGAGCCC AGCCGGGCCC CAGCATCCCT
ACTCCCACCA GCGCCAGAAC ACAGCCCCCC GAGCTCCCCG CTAACCCAGC CCCCAGAGGG GCCCAAGTTC CCTCGTGTGA
AGAACTGGGA GGTGGGGAGC ATCACCTATG ACACCCTCAG CGCCCAGGCG CAGCAGGATG GGCCCTGCAC CCCAAGACGC
TGCCTGGGCT CCCTGGTATT TCCACGGAAA CTACAGGGCC GGCCCTCCCC CGGCCCCCCG GCCCCTGAGC AGCTGCTGAG
TCAGGCCCGG GACTTCATCA ACCAGTACTA CAGCTCCATT AAGAGGAGCG GCTCCCAGGC CCACGAACAG CGGCTTCAAG
AGGTGGAAGC CGAGGTGGCA GCCACAGGCA CCTACCAGCT TAGGGAGAGC GAGCTGGTGT TCGGGGCTAA GCAGGCCTGG
CGCAACGCTC CCCGCTGCGT GGGCCGGATC CAGTGGGGGA AGCTGCAGGT GTTCGATGCC CGGGACTGCA GGTCTGCACA
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CGCAGCGCTG CCCTGGCCGA GGAGACTTCC GAATCTGGAA CAGCCAGCTG GTGCGCTACG CGGGCTACCG GCAGCAGGAC
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CTTCGACGTG CTGCCCCTGC TGCTGCAGGC CCCAGATGAG CCCCCAGAAC TCTTCCTTCT GCCCCCCGAG CTGGTCCTTG
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ATGCTGCTGG AAATTGGGGG CCTGGAGTTC CCCGCAGCCC CCTTCAGTGG CTGGTACATG AGCACTGAGA TCGGCACGAG
GAACCTGTGT GACCCTCACC GCTACAACAT CCTGGAGGAT GTGGCTGTCT GCATGGACCT GGATACCCGG ACCACCTCGT
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GACCACCACG CCGCCACGGC CTCTTTCATG AAGCACCTGG AGAATGAGCA GAAGGCCAGG GGGGGCTGCC CTGCAGACTG
GGCCTGGATC GTGCCCCCCA TCTCGGGCAG CCTCACTCCT GTTTTCCATC AGGAGATGGT CAACTATTTC CTGTCCCCGG
CCTTCCGCTA CCAGCCAGAC CCCTGGAAGG GGAGTGCCGC CAAGGGCACC GGCATCACCA GGAAGAAGAC CTTTAAAGAA
GTGGCCAACG CCGTGAAGAT CTCCGCCTCG CTCATGGGCA CGGTGATGGC GAAGCGAGTG AAGGCGACAA TCCTGTATGG
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GTATGGATGA GTATGACGTG GTGTCCCTCG AACACGAGAC GCTGGTGCTG GTGGTAACCA GCACATTTGG GAATGGGGAT
CCCCCGGAGA ATGGAGAGAG CTTTGCAGCT GCCCTGATGG AGATGTCCGG CCCCTACAAC AGCTCCCCTC GGCCGGAACA
GCACAAGAGT TATAAGATCC GCTTCAACAG CATCTCCTGC TCAGACCCAC TGGTGTCCTC TTGGCGGCGG AAGAGGAAGG
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TGGGAGAGGA TGCCAAGGCC GCCGCCCGAG ACATCTTCAG CCCCAAACGG AGCTGGAAGC GCCAGAGGTA CCGGCTGAGC
GCCCAGGCCG AGGGCCTGCA GTTGCTGCCA GGTCTGATCC ACGTGCACAG GCGGAAGATG TTCCAGGCTA CAATCCGCTC
AGTGGAAAAC CTGCAAAGCA GCAAGTCCAC GAGGGCCACC ATCCTGGTGC GCCTGGACAC CGGAGGCCAG GAGGGGCTGC
AGTACCAGCC GGGGGACCAC ATAGGTGTCT GCCCGCCCAA CCGGCCCGGC CTTGTGGAGG CGCTGCTGAG CCGCGTGGAG
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GCGGGACCCC CGGCTGCCCC CGTGCACGCT GCGCCAGGCT CTCACCTTCT TCCTGGACAT CACCTCCCCA CCCAGCCCTC
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GACCTACGTG CAGGACATCC TGAGGACGGA GCTGGCTGCG GAGGTGCACC GCGTGCTGTG CCTCGAGCGG GGCCACATGT TTGTCTGCGG CGATGTTACC ATGGCAACCA ACGTCCTGCA GACCGTGCAG CGCATCCTGG CGACGGAGGG CGACATGGAG CTGGACGAGG CCGGCGACGT CATCGGCGTG CTGCGGGATC AGCAACGCTA CCACGAAGAC ATTTTCGGGC TCACGCTGCG CACCCAGGAG GTGACAAGCC GCATACGCAC CCAGAGCTTT TCCTTGCAGG AGCGTCAGTT GCGGGGCGCA GTGCCCTGGG CGTTCGACCC TCCCGGCTCA GACACCAACA GCCCCTGAGA GCCGCCTGGC TTTCCCTTCC AGTTCCGGGA GAGCGGCTGC CCGACTCAGG TCCGCCCGAC CAGGATCAGC CCCGCTCCTC CCCTCTTGAG GTGGTGCCTT CTCACATCTG TCCAGAGGCT GCAAGGATTC AGCATTATTC CTCCAGGAAG GAGCAAAACG CCTCTTTTCC CTCTCTAGGC CTGTTGCCTC GGGCCTGGGT CCGCCTTAAT CTGGAAGGCC CCTCCCAGCA GCGGTACCCC AGGGCCTACT GCCACCCGCT TCCTGTTTCT TAGTCCGAAT GTTAGATTCC TCTTGCCTCT CTCAGGAGTA TCTTACCTGT AAAGTCTAAT CTCTAAATCA AGTATTTATT ATTGAAGATT TACCATAAGG GACTGTGCCA GATGTTAGGA GAACTACTAA AGTGCCTACC CCAGCTC-3' (FRAG. NO:1897) (SEQ ID NO:12386)

5'-CATATGTATG GGAATACTGT ATTTCAGGCA TTATAAGGAA TGAAATTATA GGCCGGGCAT TGTGGCTAAC CCTTGTAATC CTAGCACTTT GAGAGGCTGA AGTGGGCAGA TCACTTGAGC TTCAGAGTTC GAGACCAGCA TGGACAACAT GGTGAAACCC AGTCTCTACC AAAAACACAA AAATATTAGC TGGGTGTGGT GGTGCATGCC TGTAGTCCCA GCTACTCAGG AGGCTGAGGT GGGAGGATCG CTTGAGCCTG GGAGGCAGAA GTTGCAATGA GCAGAGATCG TGCCACTCCG CTCCAGTCTT GGTGACAGAA TGAGACTCCA TCTCAAAAAT AAATAAATAA ATAAATAAAA TAAATGAAAT GAAATTATAA GAAATTACCA CTTTTTCATG TAAGAAGTGA TCATTTCCAT TATAAGGGAA GGAATTTAAT CCTACCTGCC ATTCCACCAA AGCTTACCTA GTGCTAAAGG ATGAGGTGTT AGTAAGACCA ACATCTCAGA GGCCTCTCTG TGCCAATAGC CTTCCTTCCT TTCCCTTCCA AAAACCTCAA GTGACTAGTT CAGAGGCCTG TCTGGAATAA TGGCATCATC TAATATCACT GGCCTTCTGG AACCTGGGCA TTTTCCAGTG TGTTCCATAC TGTCAATATT CCCCCAGCTT CCTGGACTCC TGTCACAAGC TGGAAAAGTG AGAGGATGGA CAGGGATTAA CCAGAGAGCT CCCTGCTGAG GAAAAAATCT CCCAGATGCT GAAAGTGAGG CCATGTGGCT TGGCCAAATA AAACCTGGCT CCGTGGTGCC TCTGTCTTAG CAGCCACCCT GCTGATGAAC TGCCACCTTG GACTTGGGAC CAGAAAGAGG TGGGTTGGGT GAAGAGGCAC CACACAGAGT GATGTAACAG CAAGATCAGG TCACCCACAG GCCCTGGCAG TCACAGTCAT AAATTAGCTA ACTGTACACA AGCTGGGGAC ACTCCCTTTG GAAACCAAAA AAAAAAAAAA AAAAAAGAGA CCTTTATGCA AAAACAACTC TCTGGATGGC ATGGGGTGAG TATAAATACT TCTTGGCTGC CAGTGTGTTC ATAACTTTGT AGCGAGTCGA AAACTGAGGC TCCGGCCGCA GAGAACTCAG CCTCATTCCT GCTTTAAAAT CTCTCGGCCA CCTTTGATGA GGGGACTGGG CAGTTCTAGA CAGTCCCGAA GTTCTCAAGG CACAGGTCTC TTCCTGGTTT GACTGTCCTT ACCCCGGGGA GGCAGTGCAG CCAGCTGCAA GGTGAGTTGC C-3' (FRAG. NO:_)(SEQ ID NO:11875)

5'-CTGCTTTAAA ATCTCTCGGC CACCTTTGAT GAGGGGACTG GGCAGTTCTA GACAGTCCCG AAGTTCTCAA GGCACAGGTC TCTTCCTGGT TTGACTGTCC TTACCCCGGG GAGGCAGTGC AGCCAGCTGC AAGCCCCACA GTGAAGAACA TCTGAGCTCA AATCCAGATA AGTGACATAA GTGACCTGCT TTGTAAAGCC ATAGAGATGG CCTGTCCTTG GAAATTTCTG TTCAAGACCA AATTCCACCA GTATGCAATG AATGGGGAAA AAGACATCAA CAACAATGTG GAGAAAGCCC CCTGTGCCAC CTCCAGTCCA GTGACACAGG ATGACCTTCA GTATCACAAC CTCAGCAAGC AGCAGAATGA GTCCCCGCAG CCCCTCGTGG AGACGGGAAA GAAGTCTCCA GAATCTCTGG TCAAGCTGGA TGCAACCCCA TTGTCCTCCC CACGGCATGT GAGGATCAAA AACTGGGGCA GCGGGATGAC TTTCCAAGAC ACACTTCACC ATAAGGCCAA AGGGATTTTA ACTTGCAGGT CCAAATCTTG CCTGGGGTCC ATTATGACTC CCAAAAGTTT GACCAGAGGA CCCAGGGACA AGCCTACCCC TCCAGATGAG CTTCTACCTC AAGCTATCGA ATTTGTCAAC CAATATTACG GCTCCTTCAA AGAGGCAAAA ATAGAGGAAC ATCTGGCCAG GGTGGAAGCG GTAACAAAGG AGATAGAAAC AACAGGAACC TACCAACTGA CGGGAGATGA GCTCATCTTC GCCACCAAGC AGGCCTGGCG CAATGCCCCA CGCTGCATTG GGAGGATCCA GTGGTCCAAC CTGCAGGTCT TCGATGCCCG CAGCTGTTCC ACTGCCCGGG AAATGTTTGA ACACATCTGC AGACACGTGC GTTACTCCAC CAACAATGGC AACATCAGGT CGGCCATCAC CGTGTTCCCC CAGCGGAGTG ATGGCAAGCA CGACTTCCGG GTGTGGAATG CTCAGCTCAT CCGCTATGCT GGCTACCAGA TGCCAGATGG CAGCATCAGA GGGGACCCTG CCAACGTGGA ATTCACTCAG CTGTGCATCG ACCTGGGCTG GAAGCCCAAG TACGGCCGCT TCGATGTGGT CCCCCTGGTC CTGCAGGCCA ATGGCCGTGA CCCTGAGCTC TTCGAAATCC CACCTGACCT TGTGCTTGAG GTGGCCATGG AACATCCCAA ATACGAGTGG TTTCGGGAAC TGGAGCTAAA GTGGTACGCC CTGCCTGCAG TGGCCAACAT GCTGCTTGAG GTGGGCGGCC TGGAGTTCCC AGGGTGCCCC TTCAATGGCT GGTACATGGG CACAGAGATC GGAGTCCGGG ACTTCTGTGA CGTCCAGCGC TACAACATCC TGGAGGAAGT GGGCAGGAGA ATGGGCCTGG AAACGCACAA GCTGGCCTCG CTCTGGAAAG ACCAGGCTGT CGTTGAGATC AACATTGCTG TGATCCATAG TTTTCAGAAG CAGAATGTGA CCATCATGGA CCACCACTCG GCTGCAGAAT CCTTCATGAA GTACATGCAG AATGAATACC GGTCCCGTGG GGGCTGCCCG GCAGACTGGA TTTGGCTGGT CCCTCCCATG TCTGGGAGCA TCACCCCCGT GTTTCACCAG GAGATGCTGA ACTACGTCCT GTCCCCTTTC TACTACTATC AGGTAGAGGC CTGGAAAACC CATGTCTGGC AGGACGAGAA GCGGAGACCC AAGAGAAGAG AGATTCCATT GAAAGTCTTG GTCAAAGCTG TGCTCTTTGC CTGTATGCTG ATGCGCAAGA CAATGGCGTC CCGAGTCAGA GTCACCATCC TCTTTGCGAC AGAGACAGGA AAATCAGAGG CGCTGGCCTG GGACCTGGGG GCCTTATTCA GCTGTGCCTT CAACCCCAAG GTTGTCTGCA TGGATAAGTA CAGGCTGAGC TGCCTGGAGG AGGAACGGCT GCTGTTGGTG GTGACCAGTA CGTTTGGCAA TGGAGACTGC CCTGGCAATG GAGAGAAACT GAAGAAATCG CTCTTCATGC TGAAAGAGCT CAACAACAAA TTCAGGTACG CTGTGTTTGG CCTCGGCTCC AGCATGTACC CTCGGTTCTG CGCCTTTGCT CATGACATTG ATCAGAAGCT GTCCCACCTG GGGGCCTCTC AGCTCACCCC GATGGGAGAA GGGGATGAGC TCAGTGGGCA GGAGGACGCC TTCCGCAGCT GGGCCGTGCA AACCTTCAAG GCAGCCTGTG AGACGTTTGA TGTCCGAGGC AAACAGCACA TTCAGATCCC CAAGCTCTAC ACCTCCAATG TGACCTGGGA CCCGCACCAC TACAGGCTCG TGCAGGACTC ACAGCCTTTG GACCTCAGCA AAGCCCTCAG CAGCATGCAT GCCAAGAACG TGTTCACCAT GAGGCTCAAA TCTCGGCAGA ATCTACAAAG TCCGACATCC AGCCGTGCCA CCATCCTGGT GGAACTCTCC TGTGAGGATG GCCAAGGCCT GAACTACCTG CCGGGGGAGC ACCTTGGGGT TTGCCCAGGC AACCAGCCGG CCCTGGTCCA AGGCATCCTG GAGCGAGTGG TGGATGGCCC CACACCCCAC CAGACAGTGC GCCTGGAGGA CCTGGATGAG AGTGGCAGCT ACTGGGTCAG TGACAAGAGG CTGCCCCCCT GCTCACTCAG CCAGGCCCTC ACCTACTCCC CGGACATCAC CACACCCCCA ACCCAGCTGC TGCTCCAAAA GCTGGCCCAG GTGGCCACAG AAGAGCCTGA GAGACAGAGG CTGGAGGCCC TGTGCCAGCC CTCAGAGTAC AGCAAGTGGA AGTTCACCAA CAGCCCCACA TTCCTGGAGG TGCTAGAGGA GTTCCCGTCC CTGCGGGTGT CTGCTGGCTT CCTGCTTTCC CAGCTCCCCA TTCTGAAGCC CAGGTTCTAC TCCATCAGCT CCTCCCGGGA TCACACGCCC ACGGAGATCC ACCTGACTGT GGCCGTGGTC ACCTACCACA CCGGAGATGG CCAGGGTCCC CTGCACCACG GTGTCTGCAG CACATGGCTC AACAGCCTGA AGCCCCAAGA CCCAGTGCCC TGCTTTGTGC GGAATGCCAG CGCCTTCCAC CTCCCCGAGG ATCCCTCCCA TCCTTGCATC CTCATCGGGC CTGGCACAGG CATCGTGCCC TTCCGCAGTT TCTGGCAGCA ACGGCTCCAT GACTCCCAGC ACAAGGGAGT GCGGGGAGGC CGCATGACCT TGGTGTTTGG GTGCCGCCGC CCAGATGAGG ACCACATCTA CCAGGAGGAG ATGCTGGAGA TGGCCCAGAA GGGGGTGCTG CATGCGGTGC ACACAGCCTA TTCCCGCCTG CCTGGCAAGC CCAAGGTCTA TGTTCAGGAC ATCCTGCGGC AGCAGCTGGC CAGCGAGGTG CTCCGTGTGC TCCACAAGGA GCCAGGCCAC CTCTATGTTT GCGGGGATGT GCGCATGGCC CGGGACGTGG CCCACACCCT GAAGCAGCTG GTGGCTGCCA AGCTGAAATT GAATGAGGAG CAGGTCGAGG ACTATTTCTT TCAGCTCAAG AGCCAGAAGC GCTATCACGA AGATATCTTC GGTGCTGTAT TTCCTTACGA GGCGAAGAAG GACAGGGTGG CGGTGCAGCC CAGCAGCCTG GAGATGTCAG CGCTCTGAGG GCCTACAGGA GGGGTTAAAG CTGCCGGCAC AGAACTTAAG GATGGAGCCA GCTCTGCATT ATCTGAGGTC ACAGGGCCTG GGGAGATGGA GGAAAGTGAT ATCCCCCAGC CTCAAGTCTT ATTTCCTCAA CGTTGCTCCC CATCAAGCCC TTTACTTGAC CTCCTAACAA

GTAGCACCCT GGATTGATCG GAGCCTCCTC TCTCAAACTG GGGCCTCCCT GGTCCCTTGG AGACAAAATC TTAAATGCCA GGCCTGGCGA GTGGGTGAAA GATGGAACTT GCTGCTGAGT GCACCACTTC AAGTGACCAC CAGGAGGTGC TATCGCACCA CTGTGTATTT AACTGCCTTG TGTACAGTTA TTTATGCCTC TGTATTTAAA AAACTAACAC CCAGTCTGTT CCCCATGGCC ACTTGGGTCT TCCCTGTATG ATTCCTTGAT GGAGATATTT ACATGAATTG CATTTTACTT TAATC-3' (FRAG. NO:_)(SEQ ID NO:11876)

5'-GAATTCCCAC TCTGCTGCCT GCTCCAGCAG ACGGACGCAC AGTAACATGG GCAACTTGAA GAGCGTGGCC CAGGAGCCTG GGCCACCCTG CGGCCTGGGG CTGGGGCTGG GCCTTGGGCT GTGCGGCAAG CAGGGCCCAG CCACCCCGGC CCCTGAGCCC AGCCGGGCCC CAGCATCCCT ACTCCCACCA GCGCCAGAAC ACAGCCCCCC GAGCTCCCCG CTAACCCAGC CCCCAGAGGG GCCCAAGTTC CCTCGTGTGA AGAACTGGGA GGTGGGGAGC ATCACCTATG ACACCCTCAG CGCCCAGGCG CAGCAGGATG GGCCCCTGCAC CCCAAGACGC TGCCTGGGCT CCCTGGTATT TCCACGGAAA CTACAGGGCC GGCCCTCCCC CGGCCCCCCG GCCCCTGAGC AGCTGCTGAG TCAGGCCCGG GACTTCATCA ACCAGTACTA CAGCTCCATT AAGAGGAGCG GCTCCCAGGC CCACGAACAG CGGCTTCAAG AGGTGGAAGC CGAGGTGGCA GCCACAGGCA CCTACCAGCT TAGGGAGAGC GAGCTGGTGT TCGGGGCTAA GCAGGCCTGG CGCAACGCTC CCCGCTGCGT GGGCCGGATC CAGTGGGGGA AGCTGCAGGT GTTCGATGCC CGGGACTGCA GGTCTGCACA GGAAATGTTC ACCTACATCT GCAACCACAT CAAGTATGCC ACCAACCGGG GCAACCTTCG CTCGGCCATC ACAGTGTTCC CGCAGCGCTG CCCTGGCCGA GGAGACTTCC GAATCTGGAA CAGCCAGCTG GTGCGCTACG CGGGCTACCG GCAGCAGGAC GGCTCTGTGC GGGGGGACCC AGCCAACGTG GAGATCACCG AGCTCTGCAT TCAGCACGGC TGGACCCCAG GAAACGGTCG CTTCGACGTG CTGCCCCTGC TGCTGCAGGC CCCAGATGAG CCCCCAGAAC TCTTCCTTCT GCCCCCCGAG CTGGTCCTTG AGGTGCCCCT GGAGCACCCC ACGCTGGAGT GGTTTGCAGC CCTGGGCCTG CGCTGGTACG CCCTCCCGGC AGTGTCCAAC ATGCTGCTGG AAATTGGGGG CCTGGAGTTC CCCGCAGCCC CCTTCAGTGG CTGGTACATG AGCACTGAGA TCGGCACGAG GAACCTGTGT GACCCTCACC GCTACAACAT CCTGGAGGAT GTGGCTGTCT GCATGGACCT GGATACCCGG ACCACCTCGT CCCTGTGGAA AGACAAGGCA GCAGTGGAAA TCAACGTGGC CGTGCTGCAC AGTTACCAGC TAGCCAAAGT CACCATCGTG GACCACCACG CCGCCACGGC CTCTTTCATG AAGCACCTGG AGAATGAGCA GAAGGCCAGG GGGGGCTGCC CTGCAGACTG GGCCTGGATC GTGCCCCCCA TCTCGGGCAG CCTCACTCCT GTTTTCCATC AGGAGATGGT CAACTATTTC CTGTCCCCGG CCTTCCGCTA CCAGCCAGAC CCCTGGAAGG GGAGTGCCGC CAAGGGCACC GGCATCACCA GGAAGAAGAC CTTTAAAGAA GTGGCCAACG CCGTGAAGAT CTCCGCCTCG CTCATGGGCA CGGTGATGGC GAAGCGAGTG AAGGCGACAA TCCTGTATGG CTCCGAGACC GGCCGGGCCC AGAGCTACGC ACAGCAGCTG GGGAGACTCT TCCGGAAGGC TTTTGATCCC CGGGTCCTGT GTATGGATGA GTATGACGTG GTGTCCCTCG AACACGAGAC GCTGGTGCTG GTGGTAACCA GCACATTTGG GAATGGGGAT CCCCCGGAGA ATGGAGAGAG CTTTGCAGCT GCCCTGATGG AGATGTCCGG CCCCTACAAC AGCTCCCCTC GGCCGGAACA GCACAAGAGT TATAAGATCC GCTTCAACAG CATCTCCTGC TCAGACCCAC TGGTGTCCTC TTGGCGGCGG AAGAGGAAGG AGTCCAGTAA CACAGACAGT GCAGGGGCCC TGGGCACCCT CAGGTTCTGT GTGTTCGGGC TCGGCTCCCG GGCATACCCC CACTTCTGCG CCTTTGCTCG TGCCGTGGAC ACACGGCTGG AGGAACTGGG CGGGGAGCGG CTGCTGCAGC TGGGCCAGGG CGACGAGCTG TGCGGCCAGG AGGAGGCCTT CCGAGGCTGG GCCCAGGCTG CCTTCCAGGC CGCCTGTGAG ACCTTCTGTG TGGGAGAGGA TGCCAAGGCC GCCGCCCGAG ACATCTTCAG CCCCAAACGG AGCTGGAAGC GCCAGAGGTA CCGGCTGAGC GCCCAGGCCG AGGGCCTGCA GTTGCTGCCA GGTCTGATCC ACGTGCACAG GCGGAAGATG TTCCAGGCTA CAATCCGCTC AGTGGAAAAC CTGCAAAGCA GCAAGTCCAC GAGGGCCACC ATCCTGGTGC GCCTGGACAC CGGAGGCCAG GAGGGGCTGC AGTACCAGCC GGGGGACCAC ATAGGTGTCT GCCCGCCCAA CCGGCCCGGC CTTGTGGAGG CGCTGCTGAG CCGCGTGGAG GACCCGCCGG CGCCCACTGA GCCCGTGGCA GTAGAGCAGC TGGAGAAGGG CAGCCCTGGT GGCCCTCCCC CCGGCTGGGT GCGGGACCCC CGGCTGCCCC CGTGCACGCT GCGCCAGGCT CTCACCTTCT TCCTGGACAT CACCTCCCCA CCCAGCCCTC AGCTCTTGCG GCTGCTCAGC ACCTTGGCAG AAGAGCCCAG GGAACAGCAG GAGCTGGAGG CCCTCAGCCA GGATCCCCGA CGCTACGAGG AGTGGAAGTG GTTCCGCTGC CCCACGCTGC TGGAGGTGCT GGAGCAGTTC CCGTCGGTGG CGCTGCCTGC CCCACTGCTC CTCACCCAGC TGCCTCTGCT CCAGCCCCGG TACTACTCAG TCAGCTCGGC ACCCAGCACC CACCCAGGAG AGATCCACCT CACTGTAGCT GTGCTGGCAT ACAGGACTCA GGATGGGCTG GGCCCCCTGC ACTATGGAGT CTGCTCCACG TGGCTAAGCC AGCTCAAGCC CGGAGACCCT GTGCCCTGCT TCATCCGGGG GGCTCCCTCC TTCCGGCTGC CACCCGATCC CAGCTTGCCC TGCATCCTGG TGGGTCCAGG CACTGGCATT GCCCCCTTCC GGGGATTCTG GCAGGAGCGG CTGCATGACA TTGAGAGCAA AGGGCTGCAG CCCACTCCCA TGACTTTGGT GTTCGGCTGC CGATGCTCCC AACTTGACCA TCTCTACCGC GACGAGGTGC AGAACGCCCA GCAGCGCGGG GTGTTTGGCC GAGTCCTCAC CGCCTTCTCC CGGGAACCTG ACAACCCCAA GACCTACGTG CAGGACATCC TGAGGACGGA GCTGGCTGCG GAGGTGCACC GCGTGCTGTG CCTCGAGCGG GGCCACATGT TTGTCTGCGG CGATGTTACC ATGGCAACCA ACGTCCTGCA GACCGTGCAG CGCATCCTGG CGACGGAGGG CGACATGGAG CTGGACGAGG CCGGCGACGT CATCGGCGTG CTGCGGGATC AGCAACGCTA CCACGAAGAC ATTTTCGGGC TCACGCTGCG CACCCAGGAG GTGACAAGCC GCATACGCAC CCAGAGCTTT TCCTTGCAGG AGCGTCAGTT GCGGGGCGCA GTGCCCTGGG CGTTCGACCC TCCCGGCTCA GACACCAACA GCCCCTGAGA GCCGCCTGGC TTTCCCTTCC AGTTCCGGGA GAGCGGCTGC CCGACTCAGG TCCGCCCGAC CAGGATCAGC CCCGCTCCTC CCCTCTTGAG GTGGTGCCTT CTCACATCTG TCCAGAGGCT GCAAGGATTC AGCATTATTC CTCCAGGAAG GAGCAAAACG CCTCTTTTCC CTCTCTAGGC CTGTTGCCTC GGGCCTGGGT CCGCCTTAAT CTGGAAGGCC CCTCCCAGCA GCGGTACCCC AGGGCCTACT GCCACCCGCT TCCTGTTTCT TAGTCCGAAT GTTAGATTCC TCTTGCCTCT CTCAGGAGTA TCTTACCTGT AAAGTCTAAT CTCTAAATCA AGTATTTATT ATTGAAGATT TACCATAAGG GACTGTGCCA GATGTTAGGA GAACTACTAA AGTGCCTACC CCAGCTC-3' (FRAG. NO:_)(SEQ ID NO:11877)

5'-CCCCGGGG-3' (FRAG. NO:1898) (SEQ ID NO:11280)

5'-GGGGCCGCTGGG-3' (FRAG. NO:1899) (SEQ ID NO:11281)

5'-GGGGGTGTGG-3' (FRAG. NO:1900) (SEQ ID NO:11282)

5'-CTGCCTCCCCGGGGT-3' (FRAG. NO:1442)(SEQ ID NO:10820)

5'-TTCTGCTGCTTGCTG-3' (FRAG. NO:1443)(SEQ ID NO:10821)

5'-CTTCTTTCCCGTCTCC-3' (FRAG. NO:1444)(SEQ ID NO:10822)

5'-CTTCTTTCCCGTCTCC-3' (FRAG. NO:1445)(SEQ ID NO:10823)

5'-TTTTTGCCTCTTTG-3' (FRAG. NO:1446)(SEQ ID NO:10824)

5'-GGTTCCTGTTGTTTCT-3' (FRAG. NO:1447)(SEQ ID NO:10825)

5'-GGCCTGCTTGGTGGCG-3' (FRAG. NO:1448)(SEQ ID NO:10826)

5'-GCTTGTGCGTTTCC-3' (FRAG. NO:1449)(SEQ ID NO:10827)

5'-TCTCTCTTCTCTCTTGGGTCTCCGCTTCTCGTCCTGCC-3' (FRAG. NO:1450)(SEQ ID NO:10828)

5'-TTTTCCTGTCTCTGTCGC-3' (FRAG. NO:1451)(SEQ ID NO:10829)

5'-GCCGTTCCTCCTCC-3' (FRAG. NO:1452)(SEQ ID NO:10830)

5'-GGCGTCCTCCTGCCC-3' (FRAG. NO:1453)(SEQ ID NO:10831)

5'-TGTGCTGTTTGCCTCGG-3' (FRAG. NO:1454)(SEQ ID NO:10832)

5'-GTGGTGCGGGTCCC-3' (FRAG. NO:1455)(SEQ ID NO:10833)

5'-GGTGCTCCCCCGGC-3' (FRAG. NO:1456)(SEQ ID NO:10834)

5'-GGGCCGGCTGGTTGCCTGGGC-3' (FRAG. NO:1457)(SEQ ID NO:10835)
5'-CTGTCTGGTGGGGTGTGGGGCC-3' (FRAG. NO:1458)(SEQ ID NO:10836)
5'-GCTGGGTTGGGGGTGTGGTG-3' (FRAG. NO:1459)(SEQ ID NO:10837)
5'-GGCTCTTCTGTGGCC-3' (FRAG. NO:1460)(SEQ ID NO:10838)
5'-TGTGGGGCTGTTGGTG-3' (FRAG. NO:1461)(SEQ ID NO:10839)
5'-TCTCTGTGGGCGTGTG-3' (FRAG. NO:1462)(SEQ ID NO:10840)
5'-CTGGGTCTTGGGGCTTC-3' (FRAG. NO:1463)(SEQ ID NO:10841)
5'-CTCCCTTGTGCTGGG-3' (FRAG. NO:1464)(SEQ ID NO:10842)
5'-TGCGGCCTCCCCGC-3' (FRAG. NO:1465)(SEQ ID NO:10843)
5'-CCCCCTTCTGGGCC-3' (FRAG. NO:1466)(SEQ ID NO:10844)
5'-GGTGGCCTGGCTCCTTGTGG-3' (FRAG. NO:1467)(SEQ ID NO:10845)
5'-GCGCTTCTGGCTCTTG-3' (FRAG. NO:1468)(SEQ ID NO:10846)
5'-CCCTGTCCTTCTTCGCCTCGT-3' (FRAG. NO:1469)(SEQ ID NO:10847)
5'-GGCTGCTGGGCTGC-3' (FRAG. NO:1470)(SEQ ID NO:10848)
5'-CTGCCCCBGTTTTTGBTCCTCBCBTGCCGTGGGGBGGBCBBTGG-3'(FRAG. NO:1901) (SEQ ID NO:11283)

<u>**NF-κB Nucleic Acids and Antisense Oligonucleotide Fragments**</u>

5'-CGGCCCTTCT CACTGGAGGC ACCGGGCAGT CCTCCATGGG AGGGTTGGGC TTGGCCGGGG CTGCCCGGTG CCTCCTCTTG GCTGGTCCCT CGTTGTCCTT GGGCCCCCGC TCCCGCTGCT CGGCCTCCGT GTTCTTTGGC CTCTTGCTCC GCCTGCTGTC TTGTCCCGTC CCCTCCTCGC TTGCGTTTCC CTCTTCCTTG TCTTCCAGGC CTTCCTCCGC TTCCGCTGCT GGGGCCCGCG CCGGGGGGGC GCTCGGCTCC GCGGCTTCCT CCCCGGCTGG GGGGTCCTGG TCTCCGGGGC CTGCGGCTCG CGGGCTCGGG GCTGCGTGCG CCGCGCGCGG CGTCCGCGGT GGGTGGCGCT GTCCCGCCGT GGTGTGTCTC CGTTCTCGTC CTGCGCCGTC CTGGTCTGCC CGTGGGGTCC TGGGCGTGGT GGGGGGCGTC TGGTGCCTCG TCTGCCCCGT GGGGCTTCGG GCTCGGGGCT GTTCGTCCCC CCTGCCGCTC TGTGGCCTCC GGGGCTCCTC GTTTTCGCTG CTTCGGGTGT CCTTCTCGGC GTGTGGCCCC GGGTCCCGGC CCTGCTGGGC TGGGCGGGGT CGCTGCCCTG GGCTTCTGGC CCGTCTGGTT GTCTGTCGGT GCTTGTCTCG GGTTTCTGGC CTCTGTGCTG GGCGCTTCTC TGCCTCCTGC TCCGCCCTCC TGGTGGCTCG GCTGGGGGTG CCCGTGCGGG GGTGGGTGTG GGGTGTTTTC GGGGTCCTCC CCTTCCC-3' (FRAG. NO:1902) (SEQ ID NO:11284)
5'-GGGCGGGGTCGC-3' (FRAG. NO:1903) (SEQ ID NO:11285)
5'-GCGCCGTCC-3' (FRAG. NO:1904) (SEQ ID NO:11286)
5'-GGGCGTGGTGG-3' (FRAG. NO:1905) (SEQ ID NO:11287)
5'-GTTGGGCTTGGCCGGGG-3' (FRAG. NO:1471)(SEQ ID NO:10849)
5'-CTGCCCGGTGCCTCC-3' (FRAG. NO:1472)(SEQ ID NO:10850)
5'-TCTTGGCTGGTCCCTCGT-3' (FRAG. NO:1473)(SEQ ID NO:10851)
5'-TGTCCTTGGGCCCC-3' (FRAG. NO:1474)(SEQ ID NO:10852)
5'-GCTCCCGCTGCTCGGCCTCCGT-3' (FRAG. NO:1475)(SEQ ID NO:10853)
5'-GTTCTTTGGCCTCTTGCTCC-3' (FRAG. NO:1476)(SEQ ID NO:10854)
5'-GCCTGCTGTCTTGTCC-3' (FRAG. NO:1477)(SEQ ID NO:10855)
5'-CGTCCCCTCCTCGCTTGCGTTTC-3' (FRAG. NO:1478)(SEQ ID NO:10856)
5'-CCTCTTCCTTGTCTTCCA-3' (FRAG. NO:1479)(SEQ ID NO:10857)
5'-GGCCTTCCTCCGCTTCCGCTGC-3' (FRAG. NO:1480)(SEQ ID NO:10858)
5'-TGGGGCCCGCGCCGG-3' (FRAG. NO:1481)(SEQ ID NO:10859)
5'-GGGGGCGCTCGGCTCCGCGGCTTCCTCCCCGG-3' (FRAG. NO:1482)(SEQ ID NO:10860)
5'-CTGGGGGGTCCTGG-3' (FRAG. NO:1483)(SEQ ID NO:10861)
5'-TCTCCGGGGCCTGCGGCTCGC-3' (FRAG. NO:1484)(SEQ ID NO:10862)
5'-GGGCTCGGGGCTGCGTGCGCC-3' (FRAG. NO:1485)(SEQ ID NO:10863)
5'-GCGCGCGGCGTCCGCGGTG-3' (FRAG. NO:1486)(SEQ ID NO:10864)
5'-GGTGGCGCTGTCCCGCC-3' (FRAG. NO:1487)(SEQ ID NO:10865)
5'-GTGGTGTGTCTCCGTTCTCGTCCTGCGCCGTC-3' (FRAG. NO:1488)(SEQ ID NO:10866)
5'-CTGGTCTGCCCGTGG-3' (FRAG. NO:1489)(SEQ ID NO:10867)
5'-GGTCCTGGGCGTGGTGG-3' (FRAG. NO:1490)(SEQ ID NO:10868)
5'-GGGGCGTCTGGTGC-3' (FRAG. NO:1491)(SEQ ID NO:10869)
5'-CTCGTCTGCCCCGTG-3' (FRAG. NO:1492)(SEQ ID NO:10870)
5'-GGGCTTCGGGCTCGG-3' (FRAG. NO:1493)(SEQ ID NO:10871)
5'-GGCTGTTCGTCCCCCCTGCCGCTCTGTGGCCTCC-3' (FRAG. NO:1494)(SEQ ID NO:10872)
5'-GGGGCTCCTCGTTTTC-3' (FRAG. NO:1495)(SEQ ID NO:10873)
5'-GCTGCTTCGGGTGTCCTTCTC-3' (FRAG. NO:1496)(SEQ ID NO:10874)
5'-GGCGTGTGGCCCCGG-3' (FRAG. NO:1497)(SEQ ID NO:10875)
5'-GTCCCGGCCCTGCTGGGCTGGGCGGGGTC-3' (FRAG. NO:1498)(SEQ ID NO:10876)
5'-GCTGCCCTGGGCTTCTGGCCCGTCT-3' (FRAG. NO:1499)(SEQ ID NO:10877)
5'-GGTTGTCTGTCGGT-3' (FRAG. NO:1500)(SEQ ID NO:10878)
5'-GCTTGTCTCGGGTTTCTGG-3' (FRAG. NO:1501)(SEQ ID NO:10879)
5'-CCTCTGTGCTGGGC-3' (FRAG. NO:1502)(SEQ ID NO:10880)
5'-GCTTCTCTGCCTCCTGCTCC-3' (FRAG. NO:1503)(SEQ ID NO:10881)
5'-GCCCTCCTGGTGGCTC-3' (FRAG. NO:1504)(SEQ ID NO:10882)
5'-GGCTGGGGGTGCCCGTGCG-3' (FRAG. NO:1505)(SEQ ID NO:10883)
5'-GGGGTGGGTGTGGGGTGTT-3' (FRAG. NO:1506)(SEQ ID NO:10884)
5'-TTCGGGGTCCTCCCCTTCCC-3' (FRAG. NO:1507)(SEQ ID NO:10885)
5'-CGGCCCTTCTCACTGGAGGCACCGGGCAGTCCTCCATGGGAGG-3' (FRAG.NO:1906)(SEQ ID NO:11288)

<u>**Human Major Basic Protein Nucleic Acids and Antisense Oligonucleotide Fragments**</u>

5'-GTT TCA TCT TGG CTT TAT CCTCT CCC CTT GTT CCT CCC CTCT CCT GCT CTG GRG TCT CCT C TTC CCT CCC TCC CCT GCC GTG TTG TCT GTG GGT GTC GTT TCG CTC TTG TTG CCC TGG GCC CTT CCC TGC TGG GGG GGA GTT TCA TCT TGG GTT TCB TCT TGG CTT TBT CCTCT CCC CTT GTT CCT CCC CTCT CCT GCT CTG GRG TCT CCT C TTC CCT CCC TCC CCT GCC GTG TTG TCT GTG GGT GTC GTT TCG CTC TTG TTG CCC TGG GCC CTT CCC TGC TGG GGG GGB GTT TCB TCT TGG-3' (FRAG. ID:1907) (SEQ ID NO:11289)
5'-GGG GGA GTT-3' (FRAG. ID:1908) (SEQ ID NO:11290)

5'-G CCC TGG GCC C-3' (FRAG. ID:1909) (SEQ ID NO:11291)
5'-GTT TCA TCT TGG CTT TAT CC-3' (FRAG. NO:1508) (SEQ ID NO:10886)
5'-TCT CCC CTT GTT CCT CCC C-3' (FRAG. NO:1509)(SEQ ID NO:10887)
5'-TCT CCT GCT CTG GRG TCT CCT C-3' (FRAG. NO:1510)(SEQ ID NO:10888)
5'-TTC CCT CCC TCC CCT GCC-3' (FRAG. NO:1511)(SEQ ID NO:10889)
5'-GTG TTG TCT GTG GGT GTC C-3' (FRAG. NO:1512)(SEQ ID NO:10890)
5'-GTT TCG CTC TTG TTG CCC-3' (FRAG. NO:1513)(SEQ ID NO:10891)
5'-TGG GCC CTT CCC TGC TGG-3' (FRAG. NO:1514)(SEQ ID NO:10892)
5'-GGG GGA GTT TCA TCT TGG-3' (FRAG. NO:1515)(SEQ ID NO:10893)
5'-GTT TCA TCT TGG CTT TAT CCTCT CCC CTT GTT CCT CCC CTCT CCT GCT CTG GRG TCT CCT C TTC CCT CCC TCC CCT GCC GTG TTG TCT GTG GGT GTC GTT TCG CTC TTG TTG CCC TGG GCC CTT CCC TGC TGG GGG GGA GTT TCA TCT TGG-3' (FRAG. ID:1910) (SEQ ID NO:11292)
5'-GTT TCB TCT TGG CTT TBT CCTCT CCC CTT GTT CCT CCC CTCT CCT GCT CTG GRG TCT CCT C TTC CCT CCC TCC CCT GCC GTG TTG TCT GTG GGT GTC GTT TCG CTC TTG TTG CCC TGG GCC CTT CCC TGC TGG GGG GGB GTT TCB TCT TGG-3' (FRAG. ID:1911) (SEQ ID NO:11293)

Human Eosinophil Major Basic Protein Nucleic Acids and Antisense Oligonucleotide Fragments

5'-GGG GGB GTT TCB TCT TGG CTT T-3' (FRAG. NO:1516)(SEQ ID NO:10894)
5'-GGG GGB GTT TCB TCT TGG CTT-3' (FRAG. NO:1517)(SEQ ID NO:10895)
5'-GGG GGB GTT TCB TCT TGG CT-3' (FRAG. NO:1518)(SEQ ID NO:10896)
5'-GGG GGB GTT TCB TCT TGG C-3' (FRAG. NO:1519)(SEQ ID NO:10897)
5'-GGG GGB GTT TCB TCT TGG-3' (FRAG. NO:1520)(SEQ ID NO:10898)
5'-GGG GGB GTT TCB TCT TG-3' (FRAG. NO:1521)(SEQ ID NO:10899)
5'-GGG GGB GTT TCB TCT T-3' (FRAG. NO:1522)(SEQ ID NO:10900)
5'-GGG GGB GTT TCB TCT-3' (FRAG. NO:1523)(SEQ ID NO:10901)
5'-GGG GGB GTT TCB TC-3' (FRAG. NO:1524)(SEQ ID NO:10902)
5'-GGG GGB GTT TCB T-3' (FRAG. NO:1525)(SEQ ID NO:10903)
5'-GGG GGB GTT TCB-3' (FRAG. NO:1526)(SEQ ID NO:10904)
5'-GG GGB GTT TCB TCT TGG CTT T-3' (FRAG. NO:1527)(SEQ ID NO:10905)
5'-GG GGB GTT TCB TCT TGG CTT-3' (FRAG. NO:1528)(SEQ ID NO:10906)
5'-GG GGB GTT TCB TCT TGG CT-3' (FRAG. NO:1529)(SEQ ID NO:10907)
5'-GG GGB GTT TCB TCT TGG C-3' (FRAG. NO:1530)(SEQ ID NO:10908)
5'-GG GGB GTT TCB TCT TGG-3' (FRAG. NO:1531)(SEQ ID NO:10909)
5'-GG GGB GTT TCB TCT TG-3' (FRAG. NO:1532)(SEQ ID NO:10910)
5'-GG GGB GTT TCB TCT T-3' (FRAG. NO:1533)(SEQ ID NO:10911)
5'-GG GGB GTT TCB TCT-3' (FRAG. NO:1534)(SEQ ID NO:10912)
5'-GG GGB GTT TCB TC-3' (FRAG. NO:1535)(SEQ ID NO:10913)
5'-GG GGB GTT TCB T-3' (FRAG. NO:1536)(SEQ ID NO:10914)
5'-G GGB GTT TCB TCT TGG CTT T-3' (FRAG. NO:1537)(SEQ ID NO:10915)
5'-G GGB GTT TCB TCT TGG CTT-3' (FRAG. NO:1538)(SEQ ID NO:10916)
5'-G GGB GTT TCB TCT TGG CT-3' (FRAG. NO:1539)(SEQ ID NO:10917)
5'-G GGB GTT TCB TCT TGG C-3' (FRAG. NO:1540)(SEQ ID NO:10918)
5'-G GGB GTT TCB TCT TGG-3' (FRAG. NO:1541)(SEQ ID NO:10919)
5'-G GGB GTT TCB TCT TG-3' (FRAG. NO:1542)(SEQ ID NO:10920)
5'-G GGB GTT TCB TCT T-3' (FRAG. NO:1543)(SEQ ID NO:10921)
5'-G GGB GTT TCB TCT-3' (FRAG. NO:1544)(SEQ ID NO:10922)
5'-G GGB GTT TCB TC-3' (FRAG. NO:1545)(SEQ ID NO:10923)
5'-GGB GTT TCB TCT TGG CTT T-3' (FRAG. NO:1546)(SEQ ID NO:10924)
5'-GGB GTT TCB TCT TGG CTT-3' (FRAG. NO:1547)(SEQ ID NO:10925)
5'-GGB GTT TCB TCT TGG CT-3' (FRAG. NO:1548)(SEQ ID NO:10926)
5'-GGB GTT TCB TCT TGG C-3' (FRAG. NO:1549)(SEQ ID NO:10927)
5'-GGB GTT TCB TCT TGG-3' (FRAG. NO:1550)(SEQ ID NO:10928)
5'-GGB GTT TCB TCT TG-3' (FRAG. NO:1551)(SEQ ID NO:10929)
5'-GGB GTT TCB TCT T-3' (FRAG. NO:1552)(SEQ ID NO:10930)
5'-GGB GTT TCB TCT-3' (FRAG. NO:1553)(SEQ ID NO:10931)
5'-GB GTT TCB TCT TGG CTT T-3' (FRAG. NO:1554)(SEQ ID NO:10932)
5'-GB GTT TCB TCT TGG CTT-3' (FRAG. NO:1555)(SEQ ID NO:10933)
5'-GB GTT TCB TCT TGG CT-3' (FRAG. NO:1556)(SEQ ID NO:10934)
5'-GB GTT TCB TCT TGG C-3' (FRAG. NO:1557)(SEQ ID NO:10935)
5'-GB GTT TCB TCT TGG-3' (FRAG. NO:1558)(SEQ ID NO:10936)
5'-GB GTT TCB TCT TG-3' (FRAG. NO:1559)(SEQ ID NO:10937)
5'-GB GTT TCB TCT T-3' (FRAG. NO:1560)(SEQ ID NO:10938)
5'-B GTT TCB TCT TGG CTT T-3' (FRAG. NO:1561)(SEQ ID NO:10939)
5'-B GTT TCB TCT TGG CTT-3' (FRAG. NO:1562)(SEQ ID NO:10940)
5'-B GTT TCB TCT TGG CTT-3' (FRAG. NO:1563)(SEQ ID NO:10941)
5'-B GTT TCB TCT TGG CT-3' (FRAG. NO:1564)(SEQ ID NO:10942)
5'-B GTT TCB TCT TGG C-3' (FRAG. NO:1565)(SEQ ID NO:10943)
5'-B GTT TCB TCT TGG-3' (FRAG. NO:1565)(SEQ ID NO:10944)
5'-B GTT TCB TCT TG-3' (FRAG. NO:1567)(SEQ ID NO:10945)
5'-GTT TCB TCT TGG CTT T-3' (FRAG. NO:1568)(SEQ ID NO:10946)
5'-GTT TCB TCT TGG CTT-3' (FRAG. NO:1569)(SEQ ID NO:10947)
5'-GTT TCB TCT TGG CT-3' (FRAG. NO:1570)(SEQ ID NO:10948)
5'-GTT TCB TCT TGG C-3' (FRAG. NO:1571)(SEQ ID NO:10949)
5'-GTT TCB TCT TGG-3' (FRAG. NO:1572)(SEQ ID NO:10950)
5'-TT TCB TCT TGG CTT T-3' (FRAG. NO:1573)(SEQ ID NO:10951)
5'-TT TCB TCT TGG CTT-3' (FRAG. NO:1574)(SEQ ID NO:10952)

5'-TT TCB TCT TGG CT-3' (FRAG. NO:1575)(SEQ ID NO:10953)
5'-TT TCB TCT TGG C-3' (FRAG. NO:1576)(SEQ ID NO:10954)
5'-T TCB TCT TGG CTT T-3' (FRAG. NO:1577)(SEQ ID NO:10955)
5'-T TCB TCT TGG CTT-3' (FRAG. NO:1578)(SEQ ID NO:10956)
5'-T TCB TCT TGG CT-3' (FRAG. NO:1579)(SEQ ID NO:10957)
5'-TCB TCT TGG CTT T-3' (FRAG. NO:1580)(SEQ ID NO:10958)
5'-TCB TCT TGG CTT-3' (FRAG. NO:1581)(SEQ ID NO:10959)
5'-GGG GGB GTT TCB TCT TGG CTT T-3' (FRAG. NO:1582)(SEQ ID NO:10960)
5'-GG GGB GTT TCB TCT TGG CTT T-3' (FRAG. NO:1583)(SEQ ID NO:10961)
5'-G GGB GTT TCB TCT TGG CTT T-3' (FRAG. NO:1584)(SEQ ID NO:10962)
5'-GGB GTT TCB TCT TGG CTT T-3' (FRAG. NO:1585)(SEQ ID NO:10963)
5'-GB GTT TCB TCT TGG CTT T-3' (FRAG. NO:1586)(SEQ ID NO:10964)
5'-B GTT TCB TCT TGG CTT T-3' (FRAG. NO:1587)(SEQ ID NO:10965)
5'-GTT TCB TCT TGG CTT T-3' (FRAG. NO:1588)(SEQ ID NO:10966)
5'-TT TCB TCT TGG CTT T-3' (FRAG. NO:1589)(SEQ ID NO:10967)
5'-T TCB TCT TGG CTT T-3' (FRAG. NO:1590)(SEQ ID NO:10968)
5'-TCB TCT TGG CTT T-3' (FRAG. NO:1591)(SEQ ID NO:10969)
5'-CB TCT TGG CTT T-3' (FRAG. NO:1592)(SEQ ID NO:10970)
5'-GGG GGB GTT TCB TCT TGG CTT-3' (FRAG. NO:1593)(SEQ ID NO:10971)
5'-GG GGB GTT TCB TCT TGG CTT-3' (FRAG. NO:1594)(SEQ ID NO:10972)
5'-G GGB GTT TCB TCT TGG CTT-3' (FRAG. NO:1595)(SEQ ID NO:10973)
5'-GGB GTT TCB TCT TGG CTT-3' (FRAG. NO:1596)(SEQ ID NO:10974)
5'-GB GTT TCB TCT TGG CTT-3' (FRAG. NO:1597)(SEQ ID NO:10975)
5'-B GTT TCB TCT TGG CTT-3' (FRAG. NO:1598)(SEQ ID NO:10976)
5'-GTT TCB TCT TGG CTT-3' (FRAG. NO:1599)(SEQ ID NO:10977)
5'-TT TCB TCT TGG CTT-3' (FRAG. NO:1600)(SEQ ID NO:10978)
5'-T TCB TCT TGG CTT-3' (FRAG. NO:1601)(SEQ ID NO:10979)
5'-TCB TCT TGG CTT-3' (FRAG. NO:1602)(SEQ ID NO:10980)
5'-GGG GGB GTT TCB TCT TGG CT-3' (FRAG. NO:1603)(SEQ ID NO:10981)
5'-GG GGB GTT TCB TCT TGG CT-3' (FRAG. NO:1604)(SEQ ID NO:10982)
5'-G GGB GTT TCB TCT TGG CT-3' (FRAG. NO:1605)(SEQ ID NO:10983)
5'-GGB GTT TCB TCT TGG CT-3' (FRAG. NO:1606)(SEQ ID NO:10984)
5'-GB GTT TCB TCT TGG CT-3' (FRAG. NO:1607)(SEQ ID NO:10985)
5'-B GTT TCB TCT TGG CT-3' (FRAG. NO:1608)(SEQ ID NO:10986)
5'-GTT TCB TCT TGG CT-3' (FRAG. NO:1609)(SEQ ID NO:10987)
5'-TT TCB TCT TGG CT-3' (FRAG. NO:1610)(SEQ ID NO:10988)
5'-T TCB TCT TGG CT-3' (FRAG. NO:1611)(SEQ ID NO:10989)
5'-GGG GGB GTT TCB TCT TGG C-3' (FRAG. NO:1612)(SEQ ID NO:10990)
5'-GG GGB GTT TCB TCT TGG C-3' (FRAG. NO:1613)(SEQ ID NO:10991)
5'-G GGB GTT TCB TCT TGG C-3' (FRAG. NO:1614)(SEQ ID NO:10992)
5'-GGB GTT TCB TCT TGG C-3' (FRAG. NO:1615)(SEQ ID NO:10993)
5'-GB GTT TCB TCT TGG C-3' (FRAG. NO:1616)(SEQ ID NO:10994)
5'-B GTT TCB TCT TGG C-3' (FRAG. NO:1617)(SEQ ID NO:10995)
5'-GTT TCB TCT TGG C-3' (FRAG. NO:1618)(SEQ ID NO:10996)
5'-TT TCB TCT TGG C-3' (FRAG. NO:1619)(SEQ ID NO:10997)
5'-GGG GGB GTT TCB TCT TGG-3' (FRAG. NO:1620)(SEQ ID NO:10998)
5'-GG GGB GTT TCB TCT TGG-3' (FRAG. NO:1621)(SEQ ID NO:10999)
5'-G GGB GTT TCB TCT TGG-3' (FRAG. NO:1622)(SEQ ID NO:11000)
5'-GGB GTT TCB TCT TGG-3' (FRAG. NO:1623)(SEQ ID NO:11001)
5'-GB GTT TCB TCT TGG-3' (FRAG. NO:1624)(SEQ ID NO:11002)
5'-B GTT TCB TCT TGG-3' (FRAG. NO:1625)(SEQ ID NO:11003)
5'-GTT TCB TCT TGG-3' (FRAG. NO:1626)(SEQ ID NO:11004)
5'-GGG GGB GTT TCB TCT TG-3' (FRAG. NO:1627)(SEQ ID NO:11005)
5'-GG GGB GTT TCB TCT TG-3' (FRAG. NO:1628)(SEQ ID NO:11006)
5'-G GGB GTT TCB TCT TG-3' (FRAG. NO:1629)(SEQ ID NO:11007)
5'-GGB GTT TCB TCT TG-3' (FRAG. NO:1630)(SEQ ID NO:11008)
5'-GB GTT TCB TCT TG-3' (FRAG. NO:1631)(SEQ ID NO:11009)
5'-B GTT TCB TCT TG-3' (FRAG. NO:1632)(SEQ ID NO:11010)
5'-GGG GGB GTT TCB TCT T-3' (FRAG. NO:1633)(SEQ ID NO:11011)
5'-GG GGB GTT TCB TCT T-3' (FRAG. NO:1634)(SEQ ID NO:11012)
5'-G GGB GTT TCB TCT T-3' (FRAG. NO:1635)(SEQ ID NO:11013)
5'-G GGB GTT TCB TCT T-3' (FRAG. NO:1636)(SEQ ID NO:11014)
5'-GGB GTT TCB TCT T-3' (FRAG. NO:1637)(SEQ ID NO:11015)
5'-GB GTT TCB TCT T-3' (FRAG. NO:1638)(SEQ ID NO:11016)
5'-GGG GGB GTT TCB TCT-3' (FRAG. NO:1639)(SEQ ID NO:11017)
5'-GG GGB GTT TCB TCT-3' (FRAG. NO:1640)(SEQ ID NO:11018)
5'-G GGB GTT TCB TCT-3' (FRAG. NO:1641)(SEQ ID NO:11019)
5'-GGB GTT TCB TCT-3' (FRAG. NO:1642)(SEQ ID NO:11020)
5'-GGG GGB GTT TCB TC-3' (FRAG. NO:1643)(SEQ ID NO:11021)
5'-GG GGB GTT TCB TC-3' (FRAG. NO:1644)(SEQ ID NO:11022)
5'-G GGB GTT TCB TC-3' (FRAG. NO:1645)(SEQ ID NO:11023)
5'-GGG GGB GTT TCB T-3' (FRAG. NO:1646)(SEQ ID NO:11024)
5'-GG GGB GTT TCB T-3' (FRAG. NO:1647)(SEQ ID NO:11025)
5'-GGG GGB GTT TCB-3' (FRAG. NO:1648)(SEQ ID NO:11026)
5'-TCT CCC CTT GTT CCT CCC C-3' (FRAG. NO:1649)(SEQ ID NO:11027)

5'-TCT CCT GCT CTG GTG TCT CCT C-3' (FRAG. NO:1650)(SEQ ID NO:11028)
5'-TTC CCT CCC TCC CCT GCC-3' (FRAG. NO:1651)(SEQ ID NO:11029)
5'-GTG TTG TCT GTG GGT GTC C-3' (FRAG. NO:1652)(SEQ ID NO:11030)
5'-GTT TCG CTC TTG TTG CCC-3' -3' (FRAG. NO:1653)(SEQ ID NO:10891)
5'-TGG GCC CTT CCC TGC TGG-3' (FRAG. NO:1654)(SEQ ID NO:11032)
5'-GGG GGB G-3' (FRAG. NO:1912)(SEQ ID NO:11294)
5'-GTG GGT GTC C-3' (FRAG. NO:1913) (SEQ ID NO:11295)

BP-1 Nucleic Acids and Antisense Oligonucleotide Fragments

5'-CCGTGTTGTC BGTGGTGCTG CCCGTTTGBG GTBTGGCGCT CCBCCBBTTC CCTTTTCTCC TTGTTTTCCG TTTCTCTTGC CGTCTGTGGT T-3' (FRAG. NO:1914) (SEQ ID NO:11296)
5'-CCCGTTTGBGGTBTGGC-3'(FRAG. NO:1915) (SEQ ID NO:11297)
5'-GCTCCBCCBBTTCCCTTTTCTCC-3'(FRAG. NO:1916) (SEQ ID NO:11298)
5'-TTGTTTTCCGTTTCTCTTG-3'(FRAG. NO:1917) (SEQ ID NO:11299)
5'-CCGTCTGTGGTT-3'(FRAG. NO:1918) (SEQ ID NO:11300)
5'-CCCGTTTGAGGTATGGC-3'(FRAG. NO:1919) (SEQ ID NO:11301)
5'-GCTCCBCCAATTCCCTTTTCTCC-3'(FRAG. NO:1920) (SEQ ID NO:11302)

C/EBPNucleic Acids and Antisense Oligonucleotide Antisense Oligonucleotide Fragments

5'-GGGCCCBGCCCCGCCGCCTTTTCTBGCCCC GGCC-3' (FRAG. NO:1921) (SEQ ID NO:11303)
5'-GGGCCCBGCCCCGCCGCCTTTTCTBGCCCC GGC-3' (FRAG. NO:1922) (SEQ ID NO:11304)
5'-GGGCCCB GCCCCGCCGCCTTTTCTBGCCCCGG-3' (FRAG. NO:1923) (SEQ ID NO:11305)
5'-GGGCCCBGCCCCGCCGCCTTTTCTBGCCCCG-3' (FRAG. NO:1924) (SEQ ID NO:11306)
5'-GGGCCCBGCCCCGCCGCCTTTTCTBGCCCC-3' (FRAG. NO:1925) (SEQ ID NO:11307)
5'-GGGCCCBGCCCCGCCGCCTTTTCTBGCCC-3' (FRAG. NO:1926) (SEQ ID NO:11308)
5'-GGGCCCBGCCCCGCCGCCTTTTCTBGCC-3' (FRAG. NO:1927) (SEQ ID NO:11309)
5'-GGGCCCBGCCCCGCCGCCTTTTCTBGC-3' (FRAG. NO:1928) (SEQ ID NO:11310)
5'-GGGCCCBGCCCCGCCGCCTTTTCTBG-3' (FRAG. NO:1929) (SEQ ID NO:11311)
5'-GGGCCCBGCCCCGCCGCCTTTTCTB-3' (FRAG. NO:1930) (SEQ ID NO:11312)
5'-GGGCCCBGCCCCGCCGCCTTTTCT-3' (FRAG. NO:1931) (SEQ ID NO:11311) 1944)
5'-GGGCCCBGCCCCGCCGCCTTTTC-3' (FRAG. NO:1932) (SEQ ID NO:11314)
5'-GGGCCCBGCCCCGCCGCCTTTT-3' (FRAG. NO:1933) (SEQ ID NO:11315)
5'-GGGCCCBGCCCCGCCGCCTTT-3' (FRAG. NO:1934) (SEQ ID NO:11316) [1945)]
5'-GGGCCCBGCCCCGCCGCCTT-3' (FRAG. NO:1935) (SEQ ID NO:11317)
5'-GGGCCCBGCCCCGCCGCCT-3' (FRAG. NO:1936) (SEQ ID NO:11318)
5'-GGGCCCBGCCCCGCCGCC-3' (FRAG. NO:1937) (SEQ ID NO:11319)
5'-GGGCCCBGCCCCGCCGC-3' (FRAG. NO:1938) (SEQ ID NO:11320)
5'-GGGCCCBGCCCCGCCG-3' (FRAG. NO:1939) (SEQ ID NO:11321)
5'-GGGCCCBGCCCCGCC-3' (FRAG. NO:1940) (SEQ ID NO:11322)
5'-GGGCCCBGCCCCGC-3' (FRAG. NO:1941) (SEQ ID NO:11323)
5'-GGGCCCBGCCCCG-3' (FRAG. NO:1942) (SEQ ID NO:11324)
5'-GGGCCCBGCCCC-3' (FRAG. NO:1943) (SEQ ID NO:11325)
5'-GGGCCCBGCCC-3' (FRAG. NO:1944) (SEQ ID NO:11326)
5'-GGCCCBGCCCCGCCGCCTTTTCTBGCCCCGGC-3' (FRAG. NO:1945) (SEQ ID NO:11327)
5'-GCCCBGCCCCGCCGCCTTTTCTBGCCCCGGC-3' (FRAG. NO:1946) (SEQ ID NO:11328)
5'-CCCBGCCCCGCCGCCTTTTCTBGCCCCGGC-3' (FRAG. NO:1947) (SEQ ID NO:11329)
5'-CCBGCCCCGCCGCCTTTTCTBGCCCCGGC-3' (FRAG. NO:1948) (SEQ ID NO:11330)
5'-CBGCCCCGCCGCCTTTTCTBGCCCCGGC-3' (FRAG. NO:1948) (SEQ ID NO:11331)
5'-BGCCCCGCCGCCTTTTCTBGCCCCGGC-3' (FRAG. NO:1950) (SEQ ID NO:11332)
5'-GCCCCGCCGCCTTTTCTBGCCCCGGC-3' (FRAG. NO:1951) (SEQ ID NO:11333)
5'-CCCCGCCGCCTTTTCTBGCCCCGGC-3' (FRAG. NO:1952) (SEQ ID NO:11334)
5'-CCCGCCGCCTTTTCTBGCCCCGGC-3' (FRAG. NO:1953) (SEQ ID NO:11335)
5'-CCGCCGCCTTTTCTBGCCCCGGC-3' (FRAG. NO:1954) (SEQ ID NO:11336)
5'-CGCCGCCTTTTCTBGCCCCGGC-3' (FRAG. NO:1955) (SEQ ID NO:11337)
5'-GCCGCCTTTTCTBGCCCCGGC-3' (FRAG. NO:1956) (SEQ ID NO:11338)
5'-CCGCCTTTTCTBGCCCCGGC-3' (FRAG. NO:1957) (SEQ ID NO:11339)
5'-CGCCTTTTCTBGCCCCGGC-3' (FRAG. NO:1958) (SEQ ID NO:11340)
5'-GCCTTTTCTBGCCCCGGC-3' (FRAG. NO:1959) (SEQ ID NO:11341)
5'-CCTTTTCTBGCCCCGGC-3' (FRAG. NO:1960) (SEQ ID NO:11342)
5'-CTTTTCTBGCCCCGGC-3' (FRAG. NO:1961) (SEQ ID NO:11343)
5'-TTTTCTBGCCCCGGC-3' (FRAG. NO:1962) (SEQ ID NO:11344)
5'-TTTCTBGCCCCGGC-3' (FRAG. NO:1963) (SEQ ID NO:11345)
5'-TTCTBGCCCCGGC-3' (FRAG. NO:1964) (SEQ ID NO:11346)
5'-TCTBGCCCCGGC-3' (FRAG. NO:1965) (SEQ ID NO:11347)
5'-CTBGCCCCGGC-3' (FRAG. NO:1966) (SEQ ID NO:11348)
5'-GCGBGGCTGTCBCCTCGCTGGGCCC-3' (FRAG. NO:1967) (SEQ ID NO:11349)
5'-GCGBGGCTGTCBCCTCGCTGGGCC-3' (FRAG. NO:1968) (SEQ ID NO:11350)
5'-GCGBGGCTGTCBCCTCGCTGGGC-3' (FRAG. NO:1969) (SEQ ID NO:11351)
5'-GCGBGGCTGTCBCCTCGCTGGG-3' (FRAG. NO:1970) (SEQ ID NO:11352)
5'-GCGBGGCTGTCBCCTCGCTGG-3' (FRAG. NO:1971) (SEQ ID NO:11353)
5'-GCGBGGCTGTCBCCTCGCTG-3' (FRAG. NO:1972) (SEQ ID NO:11354)
5'-GCGBGGCTGTCBCCTCGCT-3' (FRAG. NO:1973) (SEQ ID NO:11355)
5'-GCGBGGCTGTCBCCTCGC-3' (FRAG. NO:1974) (SEQ ID NO:11356)
5'-GCGBGGCTGTCBCCTCG-3' (FRAG. NO:1975) (SEQ ID NO:11357)
5'-GCGBGGCTGTCBCCTC-3' (FRAG. NO:1976) (SEQ ID NO:11358)
5'-GCGBGGCTGTCBCCT-3' (FRAG. NO:1977) (SEQ ID NO:11359)

5'-GCGBGGCTGTCBCC-3' (FRAG. NO:1978) (SEQ ID NO:11360)
5'-GCGBGGCTGTCBC-3' (FRAG. NO:1979) (SEQ ID NO:11361)
5'-GCGBGGCTGTCB-3' (FRAG. NO:1980) (SEQ ID NO:11362)
5'-GCGBGGCTGTC-3' (FRAG. NO:1981) (SEQ ID NO:11363)
5'-GCGBGGCTGT-3' (FRAG. NO:1982) (SEQ ID NO:11364)
5'-CGBGGCTGTCBCCTCGCTGGGCCC-3' (FRAG. NO:1983) (SEQ ID NO:11365)
5'-GBGGCTGTCBCCTCGCTGGGCCC-3' (FRAG. NO:1984) (SEQ ID NO:11366)
5'-BGGCTGTCBCCTCGCTGGGCCC-3' (FRAG. NO:1985) (SEQ ID NO:11367)
5'-GGCTGTCBCCTCGCTGGGCCC-3' (FRAG. NO:1986) (SEQ ID NO:11368)
5'-GCTGTCBCCTCGCTGGGCCC-3' (FRAG. NO:1987) (SEQ ID NO:11369)
5'-CTGTCBCCTCGCTGGGCCC-3' (FRAG. NO:1988) (SEQ ID NO:11370)
5'-TGTCBCCTCGCTGGGCCC-3' (FRAG. NO:1989) (SEQ ID NO:11371)
5'-GTCBCCTCGCTGGGCCC-3' (FRAG. NO:1990) (SEQ ID NO:11372)
5'-TCBCCTCGCTGGGCCC-3' (FRAG. NO:1991) (SEQ ID NO:11373)
5'-CBCCTCGCTGGGCCC-3' (FRAG. NO:1992) (SEQ ID NO:11374)
5'-BCCTCGCTGGGCCC-3' (FRAG. NO:1993) (SEQ ID NO:11375)
5'-CCTCGCTGGGCCC-3' (FRAG. NO:1994) (SEQ ID NO:11376)
5'-CTCGCTGGGCCC-3' (FRAG. NO:1995) (SEQ ID NO:11377)
5'-TCGCTGGGCCC-3' (FRAG. NO:1996) (SEQ ID NO:11378)
5'-CGCTGGGCCC-3' (FRAG. NO:1997) (SEQ ID NO:11379)
5'-GCGCGGCCGTCBTGGCGGCGTCGGGCCGGGC-3' (FRAG. NO:1998) (SEQ ID NO:11380)
5'-GCGCGGCCGTCBTGGCGGCGTCGGGCCGGG-3' (FRAG. NO:1999) (SEQ ID NO:11381)
5'-GCGCGGCCGTCBTGGCGGCGTCGGGCCGG-3' (FRAG. NO:2000) (SEQ ID NO:11382)
5'-GCGCGGCCGTCBTGGCGGCGTCGGGCCG-3' (FRAG. NO:2001) (SEQ ID NO:11383)
5'-GCGCGGCCGTCBTGGCGGCGTCGGGCC-3' (FRAG. NO:2002) (SEQ ID NO:11384)
5'-GCGCGGCCGTCBTGGCGGCGTCGGGC-3' (FRAG. NO:2003) (SEQ ID NO:11385)
5'-GCGCGGCCGTCBTGGCGGCGTCGGG-3' (FRAG. NO:2004) (SEQ ID NO:11386)
5'-GCGCGGCCGTCBTGGCGGCGTCGG-3' (FRAG. NO:2005) (SEQ ID NO:11387)
5'-GCGCGGCCGTCBTGGCGGCGTCG-3' (FRAG. NO:2006) (SEQ ID NO:11388)
5'-GCGCGGCCGTCBTGGCGGCGTC-3' (FRAG. NO:2007) (SEQ ID NO:11389)
5'-GCGCGGCCGTCBTGGCGGCGT-3' (FRAG. NO:2008) (SEQ ID NO:11390)
5'-GCGCGGCCGTCBTGGCGGCG-3' (FRAG. NO:2009) (SEQ ID NO:11391)
5'-GCGCGGCCGTCBTGGCGGC-3' (FRAG. NO:2010) (SEQ ID NO:11392)
5'-GCGCGGCCGTCBTGGCGG-3' (FRAG. NO:2011) (SEQ ID NO:11393)
5'-GCGCGGCCGTCBTGGCG-3' (FRAG. NO:2012) (SEQ ID NO:11394)
5'-GCGCGGCCGTCBTGGC-3' (FRAG. NO:2013) (SEQ ID NO:11395)
5'-GCGCGGCCGTCBTGG-3' (FRAG. NO:2014) (SEQ ID NO:11396)
5'-GCGCGGCCGTCBTG-3' (FRAG. NO:2015) (SEQ ID NO:11397)
5'-GCGCGGCCGTCBT-3' (FRAG. NO:2016) (SEQ ID NO:11398)
5'-GCGCGGCCGTCB-3' (FRAG. NO:2017) (SEQ ID NO:11399)
5'-GCGCGGCCGTC-3' (FRAG. NO:2018) (SEQ ID NO:11400)
5'-GCGCGGCCGT-3' (FRAG. NO:2019) (SEQ ID NO:11401)
5'-CGCGGCCGTCBTGGCGGCGTCGGGCCGGGC-3' (FRAG. NO:2020) (SEQ ID NO:11402)
5'-GCGGCCGTCBTGGCGGCGTCGGGCCGGGC-3' (FRAG. NO:2021) (SEQ ID NO:11403)
5'-CGGCCGTCBTGGCGGCGTCGGGCCGGGC-3' (FRAG. NO:2022) (SEQ ID NO:11404)
5'-GGCCGTCBTGGCGGCGTCGGGCCGGGC-3' (FRAG. NO:2023) (SEQ ID NO:11405)
5'-GCCGTCBTGGCGGCGTCGGGCCGGGC-3' (FRAG. NO:2024) (SEQ ID NO:11406)
5'-CCGTCBTGGCGGCGTCGGGCCGGGC-3' (FRAG. NO:2025) (SEQ ID NO:11407)
5'-CGTCBTGGCGGCGTCGGGCCGGGC-3' (FRAG. NO:2026) (SEQ ID NO:11408)
5'-GTCBTGGCGGCGTCGGGCCGGGC-3' (FRAG. NO:2027) (SEQ ID NO:11409)
5'-TCBTGGCGGCGTCGGGCCGGGC-3' (FRAG. NO:2028) (SEQ ID NO:11410)
5'-CBTGGCGGCGTCGGGCCGGGC-3' (FRAG. NO:2029) (SEQ ID NO:11411)
5'-BTGGCGGCGTCGGGCCGGGC-3' (FRAG. NO:2030) (SEQ ID NO:11412)
5'-TGGCGGCGTCGGGCCGGGC-3' (FRAG. NO:2031) (SEQ ID NO:11413)
5'-GGCGGCGTCGGGCCGGGC-3' (FRAG. NO:2032) (SEQ ID NO:11414)
5'-GCGGCGTCGGGCCGGGC-3' (FRAG. NO:2033) (SEQ ID NO:11415)
5'-CGGCGTCGGGCCGGGC-3' (FRAG. NO:2034) (SEQ ID NO:11416)
5'-GGCGTCGGGCCGGGC-3' (FRAG. NO:2035) (SEQ ID NO:11417)
5'-GCGTCGGGCCGGGC-3' (FRAG. NO:2036) (SEQ ID NO:11418)
5'-CGTCGGGCCGGGC-3' (FRAG. NO:2037) (SEQ ID NO:11419)
5'-GTCGGGCCGGGC-3' (FRAG. NO:2038) (SEQ ID NO:11420)
5'-TCGGGCCGGGC-3' (FRAG. NO:2039) (SEQ ID NO:11421)
5'-CGGGCCGGGC-3' (FRAG. NO:2040) (SEQ ID NO:11422)
5'-CCGCBGGCCBGGGCGCGCCGCCGGCCGGGCCG-3' (FRAG. NO:2041) (SEQ ID NO:11423)
5'-CCGCBGGCCBGGGCGCGCCGCCGGCCGGGCC-3' (FRAG. NO:2042) (SEQ ID NO:11424)
5'-CCGCBGGCCBGGGCGCGCCGCCGGCCGGGC-3' (FRAG. NO:2043) (SEQ ID NO:11425)
5'-CCGCBGGCCBGGGCGCGCCGCCGGCCGGG-3' (FRAG. NO:2044) (SEQ ID NO:11426)
5'-CCGCBGGCCBGGGCGCGCCGCCGGCCGG-3' (FRAG. NO:2045) (SEQ ID NO:11427)
5'-CCGCBGGCCBGGGCGCGCCGCCGGCCG-3' (FRAG. NO:2046) (SEQ ID NO:11428)
5'-CCGCBGGCCBGGGCGCGCCGCCGGCC-3' (FRAG. NO:2047) (SEQ ID NO:11429)
5'-CCGCBGGCCBGGGCGCGCCGCCGGC-3' (FRAG. NO:2048) (SEQ ID NO:11430)
5'-CCGCBGGCCBGGGCGCGCCGCCGG-3' (FRAG. NO:2049) (SEQ ID NO:11431)
5'-CCGCBGGCCBGGGCGCGCCGCCG-3' (FRAG. NO:2050) (SEQ ID NO:11432)
5'-CCGCBGGCCBGGGCGCGCCGCC-3' (FRAG. NO:2051) (SEQ ID NO:11433)
5'-CCGCBGGCCBGGGCGCGCCGC-3' (FRAG. NO:2052) (SEQ ID NO:11434)

5'-CCGCBGGCCBGGGCGCGCCG-3' (FRAG. NO:2053) (SEQ ID NO:11435)
5'-CCGCBGGCCBGGGCGCGCC-3' (FRAG. NO:2054) (SEQ ID NO:11436)
5'-CCGCBGGCCBGGGCGCGC-3' (FRAG. NO:2055) (SEQ ID NO:11437)
5'-CCGCBGGCCBGGGCGCG-3' (FRAG. NO:2056) (SEQ ID NO:11438)
5'-CCGCBGGCCBGGGCGC-3' (FRAG. NO:2057) (SEQ ID NO:11439)
5'-CCGCBGGCCBGGGCG-3' (FRAG. NO:2058) (SEQ ID NO:11440)
5'-CCGCBGGCCBGGGC-3' (FRAG. NO:2059) (SEQ ID NO:11441)
5'-CCGCBGGCCBGGG-3' (FRAG. NO:2060) (SEQ ID NO:11442)
5'-CCGCBGGCCBGG-3' (FRAG. NO:2061) (SEQ ID NO:11443)
5'-CCGCBGGCCBG-3' (FRAG. NO:2062) (SEQ ID NO:11444)
5'-CCGCBGGCCB-3' (FRAG. NO:2063) (SEQ ID NO:11445)
5'-CCGCBGGCC-3' (FRAG. NO:2064) (SEQ ID NO:11446)
5'-CGCBGGCCBGGGCGCGCCGCCGGCCGGGCCG-3' (FRAG. NO:2065) (SEQ ID NO:11447)
5'-GCBGGCCBGGGCGCGCCGCCGGCCGGGCCG-3' (FRAG. NO:2066) (SEQ ID NO:11448)
5'-CBGGCCBGGGCGCGCCGCCGGCCGGGCCG-3' (FRAG. NO:2067) (SEQ ID NO:11449)
5'-BGGCCBGGGCGCGCCGCCGGCCGGGCCG-3' (FRAG. NO:2068) (SEQ ID NO:11450)
5'-GGCCBGGGCGCGCCGCCGGCCGGGCCG-3' (FRAG. NO:2069) (SEQ ID NO:11451)
5'-GCCBGGGCGCGCCGCCGGCCGGGCCG-3' (FRAG. NO:2070) (SEQ ID NO:11452)
5'-CCBGGGCGCGCCGCCGGCCGGGCCG-3' (FRAG. NO:2071) (SEQ ID NO:11453)
5'-CBGGGCGCGCCGCCGGCCGGGCCG-3' (FRAG. NO:2072) (SEQ ID NO:11454)
5'-BGGGCGCGCCGCCGGCCGGGCCG-3' (FRAG. NO:2073) (SEQ ID NO:11455)
5'-GGGCGCGCCGCCGGCCGGGCCG-3' (FRAG. NO:2074) (SEQ ID NO:11456)
5'-GGCGCGCCGCCGGCCGGGCCG-3' (FRAG. NO:2075) (SEQ ID NO:11457)
5'-GCGCGCCGCCGGCCGGGCCG-3' (FRAG. NO:2076) (SEQ ID NO:11458)
5'-CGCGCCGCCGGCCGGGCCG-3' (FRAG. NO:2077) (SEQ ID NO:11459)
5'-GCGCCGCCGGCCGGGCCG-3' (FRAG. NO:2078) (SEQ ID NO:11460)
5'-CGCCGCCGGCCGGGCCG-3' (FRAG. NO:2079) (SEQ ID NO:11461)
5'-GCCGCCGGCCGGGCCG-3' (FRAG. NO:2080) (SEQ ID NO:11462)
5'-CCGCCGGCCGGGCCG-3' (FRAG. NO:2081) (SEQ ID NO:11463)
5'-CGCCGGCCGGGCCG-3' (FRAG. NO:2082) (SEQ ID NO:11464)
5'-GCCGGCCGGGCCG-3' (FRAG. NO:2083) (SEQ ID NO:11465)
5'-CCGGCCGGGCCG-3' (FRAG. NO:2084) (SEQ ID NO:11466)
5'-CGGCCGGGCCG-3' (FRAG. NO:2085) (SEQ ID NO:11467)
5'-GGCCGGGCCG-3' (FRAG. NO:2086) (SEQ ID NO:11468)
5'-GGGCGCBGGCTCCGCB-3' (FRAG. NO:2087) (SEQ ID NO:11469)
5'-GGGCCCCTGGCTCGGCCCCGCGGCCCGGCTTGCCCGCCCGGCCCGG-3'(FRAG.NO:2088)(SEQ ID NO:11470)
5'-GGGCCCCTGGCTCGGCCCCGCGGCCCGGCTTGCCCGCCCGGCCCG-3' (FRAG.NO:2089)(SEQ ID NO:11471)
5'-GGGCCCCTGGCTCGGCCCCGCGGCCCGGCTTGCCCGCCCGGCCC-3' (FRAG.NO:2090)(SEQ ID NO:11472)
5'-GGGCCCCTGGCTCGGCCCCGCGGCCCGGCTTGCCCGCCCGGCC-3' (FRAG. NO:2091) (SEQ ID NO:11473)
5'-GGGCCCCTGGCTCGGCCCCGCGGCCCGGCTTGCCCGCCCGGC-3' (FRAG. NO:2092) (SEQ ID NO:11474)
5'-GGGCCCCTGGCTCGGCCCCGCGGCCCGGCTTGCCCGCCCGG-3' (FRAG. NO:2093) (SEQ ID NO:11475)
5'-GGGCCCCTGGCTCGGCCCCGCGGCCCGGCTTGCCCGCCCG-3' (FRAG. NO:2094) (SEQ ID NO:11476)
5'-GGGCCCCTGGCTCGGCCCCGCGGCCCGGCTTGCCCGCCC-3' (FRAG. NO:2095) (SEQ ID NO:11477)
5'-GGGCCCCTGGCTCGGCCCCGCGGCCCGGCTTGCCCGCC-3' (FRAG. NO:2096) (SEQ ID NO:11478)
5'-GGGCCCCTGGCTCGGCCCCGCGGCCCGGCTTGCCCGC-3' (FRAG. NO:2097) (SEQ ID NO:11479)
5'-GGGCCCCTGGCTCGGCCCCGCGGCCCGGCTTGCCCG-3' (FRAG. NO:2098) (SEQ ID NO:11480)
5'-GGGCCCCTGGCTCGGCCCCGCGGCCCGGCTTGCCC-3' (FRAG. NO:2099) (SEQ ID NO:11481)
5'-GGGCCCCTGGCTCGGCCCCGCGGCCCGGCTTGCC-3' (FRAG. NO:2100) (SEQ ID NO:11482)
5'-GGGCCCCTGGCTCGGCCCCGCGGCCCGGCTTGC-3' (FRAG. NO:2101) (SEQ ID NO:11483)
5'-GGGCCCCTGGCTCGGCCCCGCGGCCCGGCTTG-3' (FRAG. NO:2102) (SEQ ID NO:11484)
5'-GGGCCCCTGGCTCGGCCCCGCGGCCCGGCTT-3' (FRAG. NO:2103) (SEQ ID NO:11485)
5'-GGGCCCCTGGCTCGGCCCCGCGGCCCGGCT-3' (FRAG. NO:2104) (SEQ ID NO:11486)
5'-GGGCCCCTGGCTCGGCCCCGCGGCCCGGC-3' (FRAG. NO:2105) (SEQ ID NO:11487)
5'-GGGCCCCTGGCTCGGCCCCGCGGCCCGG-3' (FRAG. NO:2106) (SEQ ID NO:11488)
5'-GGGCCCCTGGCTCGGCCCCGCGGCCCG-3' (FRAG. NO:2107) (SEQ ID NO:11489)
5'-GGGCCCCTGGCTCGGCCCCGCGGCCC-3' (FRAG. NO:2108) (SEQ ID NO:11490)
5'-GGGCCCCTGGCTCGGCCCCGCGGCC-3' (FRAG. NO:2109) (SEQ ID NO:11491)
5'-GGGCCCCTGGCTCGGCCCCGCGGC-3' (FRAG. NO:2110) (SEQ ID NO:11492)
5'-GGGCCCCTGGCTCGGCCCCGCGG-3' (FRAG. NO:2111) (SEQ ID NO:11493)
5'-GGGCCCCTGGCTCGGCCCCGCG-3' (FRAG. NO:2112) (SEQ ID NO:11494)
5'-GGGCCCCTGGCTCGGCCCCGC-3' (FRAG. NO:2113) (SEQ ID NO:11495)
5'-GGGCCCCTGGCTCGGCCCCG-3' (FRAG. NO:2114) (SEQ ID NO:11496)
5'-GGGCCCCTGGCTCGGCCCC-3' (FRAG. NO:2115) (SEQ ID NO:11497)
5'-GGGCCCCTGGCTCGGCCC-3' (FRAG. NO:2116) (SEQ ID NO:11498)
5'-GGGCCCCTGGCTCGGCC-3' (FRAG. NO:2117) (SEQ ID NO:11499)
5'-GGGCCCCTGGCTCGGC-3' (FRAG. NO:2118) (SEQ ID NO:11500)
5'-GGGCCCCTGGCTCGG-3' (FRAG. NO:2119) (SEQ ID NO:11501)
5'-GGGCCCCTGGCTCG-3' (FRAG. NO:2120) (SEQ ID NO:11502)
5'-GGGCCCCTGGCTC-3' (FRAG. NO:2121) (SEQ ID NO:11503)
5'-GGGCCCCTGGCT-3' (FRAG. NO:2122) (SEQ ID NO:11504)
5'-GGCCCCTGGCTCGGCCCCGCGGCCCGGCTTGCCCGCCCGGCCCGG-3'(FRAG.NO:2123)(SEQ ID NO:11505)
5'-GCCCCTGGCTCGGCCCCGCGGCCCGGCTTGCCCGCCCGGCCCGG-3' (FRAG. NO:2124) (SEQ ID NO:11506)
5'-CCCCTGGCTCGGCCCCGCGGCCCGGCTTGCCCGCCCGGCCCGG-3' (FRAG. NO:2125) (SEQ ID NO:11507)
5'-CCCTGGCTCGGCCCCGCGGCCCGGCTTGCCCGCCCGGCCCGG-3' (FRAG. NO:2126) (SEQ ID NO:11508)
5'-CCTGGCTCGGCCCCGCGGCCCGGCTTGCCCGCCCGGCCCGG-3' (FRAG. NO:2127) (SEQ ID NO:11509)

5'-CTGGCTCGGCCCCGCGGCCCGGCTTGCCCGCCCGGCCCGG-3' (FRAG. NO:2128) (SEQ ID NO:11510)
5'-TGGCTCGGCCCCGCGGCCCGGCTTGCCCGCCCGGCCCGG-3' (FRAG. NO:2129) (SEQ ID NO:11511)
5'-GGCTCGGCCCCGCGGCCCGGCTTGCCCGCCCGGCCCGG-3' (FRAG. NO:2130) (SEQ ID NO:11512)
5'-GCTCGGCCCCGCGGCCCGGCTTGCCCGCCCGGCCCGG-3' (FRAG. NO:2131) (SEQ ID NO:11513)
5'-CTCGGCCCCGCGGCCCGGCTTGCCCGCCCGGCCCGG-3' (FRAG. NO:2132) (SEQ ID NO:11514)
5'-TCGGCCCCGCGGCCCGGCTTGCCCGCCCGGCCCGG-3' (FRAG. NO:2133) (SEQ ID NO:11515)
5'-CGGCCCCGCGGCCCGGCTTGCCCGCCCGGCCCGG-3' (FRAG. NO:2134) (SEQ ID NO:11516)
5'-GGCCCCGCGGCCCGGCTTGCCCGCCCGGCCCGG-3' (FRAG. NO:2135) (SEQ ID NO:11517)
5'-GCCCCGCGGCCCGGCTTGCCCGCCCGGCCCGG-3' (FRAG. NO:2136) (SEQ ID NO:11518)
5'-CCCCGCGGCCCGGCTTGCCCGCCCGGCCCGG-3' (FRAG. NO:2137) (SEQ ID NO:11519)
5'-CCCGCGGCCCGGCTTGCCCGCCCGGCCCGG-3' (FRAG. NO:2138) (SEQ ID NO:11520)
5'-CCGCGGCCCGGCTTGCCCGCCCGGCCCGG-3' (FRAG. NO:2139) (SEQ ID NO:11521)
5'-CGCGGCCCGGCTTGCCCGCCCGGCCCGG-3' (FRAG. NO:2140) (SEQ ID NO:11522)
5'-GCGGCCCGGCTTGCCCGCCCGGCCCGG-3' (FRAG. NO:2141) (SEQ ID NO:11523)
5'-CGGCCCGGCTTGCCCGCCCGGCCCGG-3' (FRAG. NO:2142) (SEQ ID NO:11524)
5'-GGCCCGGCTTGCCCGCCCGGCCCGG-3' (FRAG. NO:2143) (SEQ ID NO:11525)
5'-GCCCGGCTTGCCCGCCCGGCCCGG-3' (FRAG. NO:2144) (SEQ ID NO:11526)
5'-CCCGGCTTGCCCGCCCGGCCCGG-3' (FRAG. NO:2145) (SEQ ID NO:11527)
5'-CCGGCTTGCCCGCCCGGCCCGG-3' (FRAG. NO:2146) (SEQ ID NO:11528)
5'-CGGCTTGCCCGCCCGGCCCGG-3' (FRAG. NO:2147) (SEQ ID NO:11529)
5'-GGCTTGCCCGCCCGGCCCGG-3' (FRAG. NO:2148) (SEQ ID NO:11530)
5'-GCTTGCCCGCCCGGCCCGG-3' (FRAG. NO:2149) (SEQ ID NO:11531)
5'-CTTGCCCGCCCGGCCCGG-3' (FRAG. NO:2150) (SEQ ID NO:11532)
5'-TTGCCCGCCCGGCCCGG-3' (FRAG. NO:2151) (SEQ ID NO:11533)
5'-TGCCCGCCCGGCCCGG-3' (FRAG. NO:2152) (SEQ ID NO:11534)
5'-GCCCGCCCGGCCCGG-3' (FRAG. NO:2153) (SEQ ID NO:11535)
5'-CCCGCCCGGCCCGG-3' (FRAG. NO:2154) (SEQ ID NO:11536)
5'-CCGCCCGGCCCGG-3' (FRAG. NO:2155) (SEQ ID NO:11537)
5'-CGCCCGGCCCGG-3' (FRAG. NO:2156) (SEQ ID NO:11538)
5'-GCCCGGCCCGG-3' (FRAG. NO:2157) (SEQ ID NO:11539)
5'-GGCGGGGGCGGCGGCGCCTGGCTCGCCTBGGGCCCC-3' (FRAG. NO:2158) (SEQ ID NO:11540)
5'-GGCGGGGGCGGCGGCGCCTGGCTCGCCTBGGGCCC-3' (FRAG. NO:2159) (SEQ ID NO:11541)
5'-GGCGGGGGCGGCGGCGCCTGGCTCGCCTBGGGCC-3' (FRAG. NO:2160) (SEQ ID NO:11542)
5'-GGCGGGGGCGGCGGCGCCTGGCTCGCCTBGGGC-3' (FRAG. NO:2161) (SEQ ID NO:11543)
5'-GGCGGGGGCGGCGGCGCCTGGCTCGCCTBGGG-3' (FRAG. NO:2162) (SEQ ID NO:11544)
5'-GGCGGGGGCGGCGGCGCCTGGCTCGCCTBGG-3' (FRAG. NO:2163) (SEQ ID NO:11545)
5'-GGCGGGGGCGGCGGCGCCTGGCTCGCCTBG-3' (FRAG. NO:2164) (SEQ ID NO:11546)
5'-GGCGGGGGCGGCGGCGCCTGGCTCGCCTB-3' (FRAG. NO:2165) (SEQ ID NO:11547)
5'-GGCGGGGGCGGCGGCGCCTGGCTCGCCT-3' (FRAG. NO:2166) (SEQ ID NO:11548)
5'-GGCGGGGGCGGCGGCGCCTGGCTCGCC-3' (FRAG. NO:2167) (SEQ ID NO:11549)
5'-GGCGGGGGCGGCGGCGCCTGGCTCGC-3' (FRAG. NO:2168) (SEQ ID NO:11550)
5'-GGCGGGGGCGGCGGCGCCTGGCTCG-3' (FRAG. NO:2169) (SEQ ID NO:11551)
5'-GGCGGGGGCGGCGGCGCCTGGCTC-3' (FRAG. NO:2170) (SEQ ID NO:11552)
5'-GGCGGGGGCGGCGGCGCCTGGCT-3' (FRAG. NO:2171) (SEQ ID NO:11553)
5'-GGCGGGGGCGGCGGCGCCTGGC-3' (FRAG. NO:2172) (SEQ ID NO:11554)
5'-GGCGGGGGCGGCGGCGCCTGG-3' (FRAG. NO:2173) (SEQ ID NO:11555)
5'-GGCGGGGGCGGCGGCGCCTG-3' (FRAG. NO:2174) (SEQ ID NO:11556)
5'-GGCGGGGGCGGCGGCGCCT-3' (FRAG. NO:2175) (SEQ ID NO:11557)
5'-GGCGGGGGCGGCGGCGCC-3' (FRAG. NO:2176) (SEQ ID NO:11558)
5'-GGCGGGGGCGGCGGCGC-3' (FRAG. NO:2177) (SEQ ID NO:11559)
5'-GGCGGGGGCGGCGGCG-3' (FRAG. NO:2178) (SEQ ID NO:11560)
5'-GGCGGGGGCGGCGGC-3' (FRAG. NO:2179) (SEQ ID NO:11561)
5'-GGCGGGGGCGGCGG-3' (FRAG. NO:2180) (SEQ ID NO:11562)
5'-GGCGGGGGCGGCG-3' (FRAG. NO:2181) (SEQ ID NO:11563)
5'-GGCGGGGGCGGC-3' (FRAG. NO:2182) (SEQ ID NO:11564)
5'-GGCGGGGGCGG-3' (FRAG. NO:2183) (SEQ ID NO:11565)
5'-GCGGGGGCGGCGGCGCCTGGCTCGCCTBGGGCCCC-3' (FRAG. NO:2184) (SEQ ID NO:11566)
5'-CGGGGGCGGCGGCGCCTGGCTCGCCTBGGGCCCC-3' (FRAG. NO:2185) (SEQ ID NO:11567)
5'-GGGGGCGGCGGCGCCTGGCTCGCCTBGGGCCCC-3' (FRAG. NO:2186) (SEQ ID NO:11568)
5'-GGGGCGGCGGCGCCTGGCTCGCCTBGGGCCCC-3' (FRAG. NO:2187) (SEQ ID NO:11569)
5'-GGGCGGCGGCGCCTGGCTCGCCTBGGGCCCC-3' (FRAG. NO:2188) (SEQ ID NO:11570)
5'-GGCGGCGGCGCCTGGCTCGCCTBGGGCCCC-3' (FRAG. NO:2189) (SEQ ID NO:11571)
5'-GCGGCGGCGCCTGGCTCGCCTBGGGCCCC-3' (FRAG. NO:2190) (SEQ ID NO:11572)
5'-CGGCGGCGCCTGGCTCGCCTBGGGCCCC-3' (FRAG. NO:2191) (SEQ ID NO:11573)
5'-GGCGGCGCCTGGCTCGCCTBGGGCCCC-3' (FRAG. NO:2192) (SEQ ID NO:11574)
5'-GCGGCGCCTGGCTCGCCTBGGGCCCC-3' (FRAG. NO:2193) (SEQ ID NO:11575)
5'-CGGCGCCTGGCTCGCCTBGGGCCCC-3' (FRAG. NO:2194) (SEQ ID NO:11576)
5'-GGCGCCTGGCTCGCCTBGGGCCCC-3' (FRAG. NO:2195) (SEQ ID NO:11577)
5'-GCGCCTGGCTCGCCTBGGGCCCC-3' (FRAG. NO:2196) (SEQ ID NO:11578)
5'-CGCCTGGCTCGCCTBGGGCCCC-3' (FRAG. NO:2197) (SEQ ID NO:11579)
5'-GCCTGGCTCGCCTBGGGCCCC-3' (FRAG. NO:2198) (SEQ ID NO:11580)
5'-CCTGGCTCGCCTBGGGCCCC-3' (FRAG. NO:2199) (SEQ ID NO:11581)
5'-CTGGCTCGCCTBGGGCCCC-3' (FRAG. NO:2200) (SEQ ID NO:11582)
5'-TGGCTCGCCTBGGGCCCC-3' (FRAG. NO:2201) (SEQ ID NO:11583)
5'-GGCTCGCCTBGGGCCCC-3' (FRAG. NO:2202) (SEQ ID NO:11584)

5'-GCTCGCCTBGGGCCCC-3' (FRAG. NO:2203) (SEQ ID NO:11585)
5'-CTCGCCTBGGGCCCC-3' (FRAG. NO:2204) (SEQ ID NO:11586)
5'-TCGCCTBGGGCCCC-3' (FRAG. NO:2205) (SEQ ID NO:11587)
5'-CGCCTBGGGCCCC-3' (FRAG. NO:2206) (SEQ ID NO:11588)
5'-GCCTBGGGCCCC-3' (FRAG. NO:2207) (SEQ ID NO:11589)
5'-CCTBGGGCCCC-3' (FRAG. NO:2208) (SEQ ID NO:11590)
5'-CTBGGGCCCC-3' (FRAG. NO:2209) (SEQ ID NO:11591)
5'-GGGTGGGCBCGGCGGCC-3' (FRAG. NO:2210) (SEQ ID NO:11592)
5'-GGTCGGCGBBGBGCTCGTCGTGGC-3' (FRAG. NO:2211) (SEQ ID NO:11593)
5'-GGTCGGCGBBGBGCTCGTCGTGG-3' (FRAG. NO:2212) (SEQ ID NO:11594)
5'-GGTCGGCGBBGBGCTCGTCGTG-3' (FRAG. NO:2213) (SEQ ID NO:11595)
5'-GGTCGGCGBBGBGCTCGTCGT-3' (FRAG. NO:2214) (SEQ ID NO:11596)
5'-GGTCGGCGBBGBGCTCGTCG-3' (FRAG. NO:2215) (SEQ ID NO:11597)
5'-GGTCGGCGBBGBGCTCGTC-3' (FRAG. NO:2216) (SEQ ID NO:11598)
5'-GGTCGGCGBBGBGCTCGT-3' (FRAG. NO:2217) (SEQ ID NO:11599)
5'-GGTCGGCGBBGBGCTCG-3' (FRAG. NO:2218) (SEQ ID NO:11600)
5'-GGTCGGCGBBGBGCTC-3' (FRAG. NO:2219) (SEQ ID NO:11601)
5'-GGTCGGCGBBGBGCT-3' (FRAG. NO:2220) (SEQ ID NO:11602)
5'-GGTCGGCGBBGBGC-3' (FRAG. NO:2221) (SEQ ID NO:11603)
5'-GGTCGGCGBBGBG-3' (FRAG. NO:2222) (SEQ ID NO:11604)
5'-GGTCGGCGBBGB-3' (FRAG. NO:2223) (SEQ ID NO:11605)
5'-GGTCGGCGBBG-3' (FRAG. NO:2224) (SEQ ID NO:11606)
5'-GTCGGCGBBGBGCTCGTCGTGGC-3' (FRAG. NO:2225) (SEQ ID NO:11607)
5'-TCGGCGBBGBGCTCGTCGTGGC-3' (FRAG. NO:2226) (SEQ ID NO:11608)
5'-CGGCGBBGBGCTCGTCGTGGC-3' (FRAG. NO:2227) (SEQ ID NO:11609)
5'-GGCGBBGBGCTCGTCGTGGC-3' (FRAG. NO:2228) (SEQ ID NO:11610)
5'-GCGBBGBGCTCGTCGTGGC-3' (FRAG. NO:2229) (SEQ ID NO:11611)
5'-CGBBGBGCTCGTCGTGGC-3' (FRAG. NO:2230) (SEQ ID NO:11612)
5'-GBBGBGCTCGTCGTGGC-3' (FRAG. NO:2231) (SEQ ID NO:11613)
5'-BBGBGCTCGTCGTGGC-3' (FRAG. NO:2232) (SEQ ID NO:11614)
5'-BGBGCTCGTCGTGGC-3' (FRAG. NO:2233) (SEQ ID NO:11615)
5'-GBGCTCGTCGTGGC-3' (FRAG. NO:2234) (SEQ ID NO:11616)
5'-BGCTCGTCGTGGC-3' (FRAG. NO:2235) (SEQ ID NO:11617)
5'-GCTCGTCGTGGC-3' (FRAG. NO:2236) (SEQ ID NO:11618)
5'-CTCGTCGTGGC-3' (FRAG. NO:2237) (SEQ ID NO:11619)
5'-TCGTCGTGGC-3' (FRAG. NO:2238) (SEQ ID NO:11620)
5'-GGGGCCCCGCGCCGCCCGCC-3' (FRAG. NO:2239) (SEQ ID NO:11621)
5'-GGGGCCCCGCGCCGCCCGC-3' (FRAG. NO:2240) (SEQ ID NO:11622)
5'-GGGGCCCCGCGCCGCCCG-3' (FRAG. NO:2241) (SEQ ID NO:11623)
5'-GGGGCCCCGCGCCGCCC-3' (FRAG. NO:2242) (SEQ ID NO:11624)
5'-GGGGCCCCGCGCCGCC-3' (FRAG. NO:2243) (SEQ ID NO:11625)
5'-GGGGCCCCGCGCCGC-3' (FRAG. NO:2244) (SEQ ID NO:11626)
5'-GGGGCCCCGCGCCG-3' (FRAG. NO:2245) (SEQ ID NO:11627)
5'-GGGGCCCCGCGCC-3' (FRAG. NO:2246) (SEQ ID NO:11628)
5'-GGGGCCCCGCGC-3' (FRAG. NO:2247) (SEQ ID NO:11629)
5'-GGGCCCCGCGCCGCCCGCC-3' (FRAG. NO:2248) (SEQ ID NO:11630)
5'-GGCCCCGCGCCGCCCGCC-3' (FRAG. NO:2249) (SEQ ID NO:11631)
5'-GCCCCGCGCCGCCCGCC-3' (FRAG. NO:2250) (SEQ ID NO:11632)
5'-CCCCGCGCCGCCCGCC-3' (FRAG. NO:2251) (SEQ ID NO:11633)
5'-CCCGCGCCGCCCGCC-3' (FRAG. NO:2252) (SEQ ID NO:11634)
5'-CCGCGCCGCCCGCC-3' (FRAG. NO:2253) (SEQ ID NO:11635)
5'-CGCGCCGCCCGCC-3' (FRAG. NO:2254) (SEQ ID NO:11636)
5'-GCGCCGCCCGCC-3' (FRAG. NO:2255) (SEQ ID NO:11637)
5'-CGCCGCCCGCC-3' (FRAG. NO:2256) (SEQ ID NO:11638)
5'-GCCGCCCGCC-3' (FRAG. NO:2257) (SEQ ID NO:11639)
5'-GGGGCGCGCGGGGCCGCCGGG-3' (FRAG. NO:2258) (SEQ ID NO:11640)
5'-GGCGGGGBGCGGCBGGGCCCGGGCCC-3' (FRAG. NO:2259) (SEQ ID NO:11641)
5'-GGCGCGTCGCCGTCGCCCCBGTCGGGCTCGCGC-3' (FRAG. NO:2260) (SEQ ID NO:11642)
5'-GCGCGGGCBBCBGCGBGCCGGGCGCG-3' (FRAG. NO:2261) (SEQ ID NO:11643)
5'-GCGCBCGGGCCCBCCTGCGCGGGC-3' (FRAG. NO:2262) (SEQ ID NO:11644)
5'-GGGCGGGGTGGGCTGCCCTGCGGCCGCC-3' (FRAG. NO:2263) (SEQ ID NO:11645)
5'-GGGCTGCTGCGCGGCGGCTCCGGCGA-3' (FRAG. NO:2264) (SEQ ID NO:11646)
5'-CTCCCGGGCGGGGCCGGGCGCGGGG-3' (FRAG. NO:2265) (SEQ ID NO:11647)
5'-GGGCTGCCGCGGTCCGGGCCCCTCTTGCCGGCG-3' (FRAG. NO:2266) (SEQ ID NO:11648)
5'-GCGCTCGCGCCGCTGCCGG-3' (FRAG. NO:2267) (SEQ ID NO:11649)
5'-GCGCCGCTTGGCCTTGTCGCGGC-3' (FRAG. NO:2268) (SEQ ID NO:11650)
5'-GCTGCTCCBCGCGCTGG-3' (FRAG. NO:2269) (SEQ ID NO:11651)
5'-GCCGGBGGCCGGCCBGGTCCCGCG-3' (FRAG. NO:2270) (SEQ ID NO:11652)
5'-CCCGGCGGCCGGCBGGBBGGGCGGGCTGGGC-3' (FRAG. NO:2271) (SEQ ID NO:11653)
5'-GTCTCTCCCGCCCCGGCCGCGCG-3' (FRAG. NO:2272) (SEQ ID NO:11654)
5'-GGGCGTCCGCTCCGGGCCGTCGGG-3' (FRAG. NO:2273) (SEQ ID NO:11655)
5'-GCGGGCACGCGGCGGCTCTGGCGTCGGC-3' (FRAG. NO:2274) (SEQ ID NO:11656)

Bradykinin Receptor Nucleic Acids and Antisense Oligonucleotide Fragments

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CATTCCTGGG CCCCAGTCAC TCCTCTCCCT GCCCCCCTTG CTGGGGCAGG GACGGGGTG BCBTTGBGCB TGTCGGCGCG
GTCCCGTTBB GBGTGGGCCC GCCAGCCCAG CCACTCCACT TGGGGGCGGG TGGCCAGCAC GAACAGCACC CAGAGGAAGG
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ATGAAGGAGT ACAGCGATGA GGGCCACAAC GTCACCGCTT GTGTCATCAG CTACCCATCC CTCATCTGGG AAGTGTTCAC
CAACATGCTC CTGAATGTCG TGGGCTTCCT GCTGCCCCTG AGTGTCATCA CCTTCTGCAC GATGCAGATC ATGCAGGTGC
TGCGGAACAA CGAGATGCAG AAGTTCAAGG AGATCCAGAC GGAGAGGAGG GCCACGGTGC TAGTCCTGGT TGTGCTGCTG
CTATTCATCA TCTGCTGGCT GCCCTTCCAG ATCAGCACCT TCCTGGATAC GCTGCATCGC CTCGGCATCC TCTCCAGCTG
CCAGGACGAG CGCATCATCG ATGTAATCAC ACAGATCGCC TCCTTCATGG CCTACAGCAA CAGCTGCCTC AACCCACTGG
TGTACGTGAT CGTGGGCAAG CGCTTCCGAA AGAAGTCTTG GGAGGTGTAC CAGGGAGTGT GCCAGAAAGG GGGCTGCAGG
TCAGAACCCA TTCAGATGGA GAACTCCATG GGCACACTGC GGACCTCCAT CTCCGTGGAA CGCCAGATTC ACAAACTGCA
GGACTGGGCA GGGAGCAGAC AGTGAGCAAA CGCCAGCAGG GCTGCTGTGA ATTTGTGTAA GGATTGAGGG ACAGTTGCTT
TTCAGCATGG GCCCAGGAAT GCCAAGGAGA CATCTATGCA CGACCTTGGG AAATGAGTTG ATGTCTCCGG TAAAACACCG
GAGACTAATT CCTGCCCTGC CCAATTTTGC AGGGAGCATG GCTGTGAGGA TGGGGTGAAC TCACGCACAG CCAAGGACTC
CAAAATCACA ACAGCATTAC TGTTCTTATT TGCTGCCACA CCTGAGCCAG CCTGCTCCTT CCCAGGAGTG GAGGAGGCCT
GGGGGCAGGG AGAGGAGTGA CTGAGCTTCC CTCCCGTGTG TTCTCCGTCC CTGCCCCAGC AAGACAACTT AGATCTCCAG
GAGAACTGCC ATCCAGCTTT GGTGCAATGG CTGAGTGCAC AAGTGAGTTG TTGCCCTGGG TTTCTTTAAT CTATTCAGCT
AGAACTTTGA AGGACAATTT CTTGCATTAA TAAAGGTTAA GCCCTGAGGG GTCCCTGATA ACAACCTGGA GACCAGGATT
TTATGGCTCC CCTCACTGAT GGACAAGGAG GTCTGTGCCA AAGAAGAATC CAATAAGCAC ATATTGAGCA CTTGCTGTAT
ATGCAGTATT GAGCACTGTA GGCAAGAGGG AAGAAAGAGA AGGAGCCATC TCCATCTTGA AGGAACTCAA AGACTCAAGT
GGGAACGACT GGGCACTGCC ACCACCAGAA AGCTGTTCGA TGAGACGGTC GAGCAGGGTG CTGTGGGTGA TATGGACAGC
AGAAGGGGGA GCCAGGTTCC AGCTCACCAA TACTATTGCA CACCACCTGT CCTGCCTC TGATCCTATC ACAACCTGAG
AGTAGTTTTT ACTCCATTTA CAGGTGAGGT CATTGTGGTT CAAGGACGTT AAGTAACTTC CCCAGCTCAC ACGGCTTATA
AGTAAGGCAG CCAGGATGTG AACCCAGTAG GACTATCTGG CTGCAAAGTC CCCACCCCTCC CTCGCCATCT GTATCCTCCA
ATCATCTTCA GTGCTTTGCT GATAGAAGGT ACGGAAATAC GATGCCACAG ACTGTCCAGG AAGACAGAAA CTAGGCAGAT
GGGCTGGCCA TGGTCTCCAA GCCAGACTGG AATCTCCAGG TCTGGAATGA TATCATTTTT CTCTTTTAAT AAATTAACTC
ACCCACCACA CGGCTTTGAG AGGCTCAAAG GTGACCAACT CCCTTGGGAG GGCCCCGGTT GATAAGGAAG GAATGTGAAT
CCTCCCATCA CGGAAGCTTC AAGGAGGTCA AGGGTCCAAC ACTTGAGATT GTTAGTGCTG TTGGTGGATA CTGCAGAATA
TCCAGTGGAG CCTCAGATGA AGAACATGAG GCCCCGTTTA GATCCAAGGA TCAGAGGGGG CTCTGTAAGA CCCAGGGGAG
TCAGGTGCAC. TGGAGCGCGG GCTGCAGAAA ACAGCCTGAG CTCCACCTCG GCTTCTCCTT GCCCTGGCTG GTTGTCCTTA
ACCCCTGTCT CCTTCTGGAC CAGTTTTTGT CCTTCCCTTG TGACCTGAGG GGTAACAGCC TCTTTCCACT TTCTTTCAG

CGCCGACATG CTCAATGTCA CCTTGCAAGG GCCCACTCTT AACGGGACCT TTGCCCAGAG CAAATGCCCC CAAGTGGAGT
GGCTGGGCTG GCTCAACACC ATCCAGCCCC CCTTCCTCTG GGTGCTGTTC GTGCTGGCCA CCCTAGAGAA CATCTTTGTC
CTCAGCGTCT TCTGCCTGCA CAAGAGCAGC TGCACGGTGG CAGAGATCTA CCTGGGGAAC CTGGCCGCAG CAGACCTGAT
CCTGGCCTGC GGGCTGCCCT TCTGGGCCAT CACCATCTCC AACAACTTCG ACTGGCTCTT TGGGGAGACG CTCTGCCGCG
TGGTGAATGC CATTATCTCC ATGAACCTGT ACAGCAGCAT CTGTTTCCTG ATGCTGGTGA GCATCGACCG CTACCTGGCC
CTGGTGAAAA CCATGTCCAT GGGCCGGATG CGCGGCGTGC GCTGGGCCAA GCTCTACAGC TTGGTGATCT GGGGGTGTAC
GCTGCTCCTG AGCTCACCCA TGCTGGTGTT CCGGACCATG AAGGAGTACA GCGATGAGGG CCACAACGTC ACCGCTTGTG
TCATCAGCTA CCCATCCCTC ATCTGGGAAG TGTTCACCAA CATGCTCCTG AATGTCGTGG GCTTCCTGCT GCCCCTGAGT
GTCATCACCT TCTGCACGAT GCAGATCATG CAGGTGCTGC GGAACAACGA GATGCAGAAG TTCAAGGAGA TCCAGACGGA
GAGGAGGGCC ACGGTGCTAG TCCTGGTTGT GCTGCTGCTA TTCATCATCT GCTGGCTGCC CTTCCAGATC AGCACCTTCC
TGGATACGCT GCATCGCCTC GGCATCCTCT CCAGCTGCCA GGACGAGCGC ATCATCGATG TAATCACACA GATCGCCTCC
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CCTCCATCTC CGTGGAACGC CAGATTCACA AACTGCAGGA CTGGGCAGGG AGCAGACAGT GAGCAAACGC CAGCAGGGCT
GCTGTGAATT TGTGTAAGGA TTGAGGGACA GTTGCTTTTC AGCATGGGCC CAGGAATGCC AAGGAGACAT CTATGCACGA
CCTTGGGAAA TGAGTGTTGA TGTCTCCGGT AAAACACCGG AGACTAATTC CTGCCCTGCC CAATTTTCGA GGGAGCATGG
CTGTGAGGAT GGGGTGAACT CACGCACAGC CAAGGACTCC AAAATCACAA CAGCATTACT GTTCTTATTT GCTGCCACAC
CTGAGCCAGC CTGCTCCTTC CCAGGAGTGG AGGAGGCCTG GGGGAGGGAG AGGAGTGACT GAGCTTCCCT CCCGTGTGTT
CTCCGTCCCT GCCCCAGCAA GACAACTTAG ATCTCCAGGA GAACTGCCAT CCACGTTTGG TGCAATGGCT GAGTGCACAA
GTGAGTTGTT GCCCTGGGTT TCTTTAATCT ATCAGCTAGA ACTTTGAAGG ACAATTTCTT GCATTAATAA AGGTTAAGCC
CTGAGGGGTC CCTTGATAAC AACCTGGAGA CCAGGATTTT ATGGCTCCCC TCACTGATGG ACAAGGAGGT CTGTGCCAAA
GAAGAATCAA TAAGCACATA TGAGCACTTC TGTATATCAG TATTGAGCAC TGTAGGCA ATGTTCTCTC CCTGGAAGAT
ATCAATGTTT CTGTCTGTTT GTGAGGACTC CGTGCCCACC ACGGCCTCTT TCAGCGCCGA CATGCTCAAT GTCACCTTGC
AAGGGCCCAC TCTTAACGGG ACCTTTGCCC AGAGCAAATG CCCCCAAGTG GAGTGGCTGG GCTGGCTCAA CACCATCCAG
CCCCCCTTCC TCTGGGTGCT GTTCGTGCTG GCCACCCTAG AGAACATCTT TGTCCTCAGC GTCTTCTGCC TGCACAAGAG
CAGCTGCACG GTGGCAGAGA TCTACCTGGG GAACCTGGCC GCAGCAGACC TGATCCTGGC CTGCGGGCTG CCCTTCTGGG
CCATCACCAT CTCCAACAAC TTCGACTGGC TCTTTGGGGA GACGCTCTGC CGCGTGGTGA ATGCCATTAT CTCCATGAAC
CTGTACAGCA GCATCTGTTT CCTGATGCTG GTGAGCATCG ACCGCTACCT GGCCCTGGTG AAAACCATGT CCATGGGCCG
GATGCGCGGC GTGCGCTGGG CCAAGCTCTA CAGCTTGGTG ATCTGGGGGT GTACGCTGCT CCTGAGCTCA CCCATGCTGG
TGTTCCGGAC CATGAAGGAG TACAGCGATG AGGGCCACAA CGTCACCGCT TGTGTCATCA GCTACCCATC CCTCATCTGG
GAAGTGTTCA CCAACATGCT CCTGAATGTC GTGGGCTTCC TGCTGCCCCT GAGTGTCATC ACCTTCTGCA CGATGCAGAT
CATGCAGGTG CTGCGGAACA ACGAGATGCA GAAGTTCAAG GAGATCCAGA CGGAGAGGAG GGCCACGGTG CTAGTCCTGG
TTGTGCTGCT GCTATTCATC ATCTGCTGGC TGCCCTTCCA GATCAGCACC TTCCTGGATA CGCTGCATCG CCTCGGCATC
CTCTCCAGCT GCCAGGACGA GCGCATCATC GATGTAATCA CACAGATCGC CTCCTTCATG GCCTACAGCA ACAGCTGCCT
CAACCCACTG GTGTACGTGA TCGTGGGCAA GCGCTTCCGA AAGAAGTCTT GGGAGGTGTA CCAGGGAGTG TGCCAGAAAG
GGGGCTGCAG GTCAGAACCC ATTCAGATGG AGAACTCCAT GGGCACACTG CGGACCTCCA TCTCCGTGGA ACGCCAGATT
CACAAACTGC AGGACTGGGC AGGGAGCAGA CAGTGAGCAA ACGCCAGCAG GGCTGCTGTG AATTTGTGTA AGGATTGAGG
GACAGTTGCT T ATGTTCTCTC CCTGGAAGAT ATCAATGTTT CTGTCTGTTC GTGAGGACTC CGTGCCCACC ACGGCCTCTT
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GAGTGGCTGG GCTGGCTCAA CACCATCCAG CCCCCCTTCC TCTGGGTGCT GTTCGTGCTG GCCACCCTAG AGAACATCTT
TGTCCTCAGC GTCTTCTGCC TGCACAAGAG CAGCTGCACG GTGGCAGAGA TCTACCTGGG GAACCTGGCC GCAGCAGACC
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CGCGTGGTGA ATGCCATTAT CTCCATGAAC CTGTACAGCA GCATCTGTTT CCTGATGCTG GTGAGCATCG ACCGCTACCT
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TGTGTCATCA GCTACCCATC CCTCATCTGG GAAGTGTTCA CCAACATGCT CCTGAATGTC GTGGGCTTCC TGCTGCCCCT
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CATGCCGCTT GCTCCGGAGA AGGTGGGTGC CGGGCAGGGG CTGCTCCAGC CGCCTCACCT CTGCTGGGAG GACAAACTGT
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AGTTTCCCTG TGGTCGTGGG GAGTT GAGCTCTTCA ATATTTTAGT GAAAGCTATA GATGAGGCTC CATAGGGGAT
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AGAAACCTCC GCCATACATC TCCGAAGAAA CGGCCGCGTG TCTCAGGGGA GCGCAAACAC CCGTACCCAG GAAACAGGAC
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GGACGTTTTT GCCGTCCCAC GACTCCAACG GGCAGCCGGG CCTACGCAAA CATGGAAATC TTCCAAGAGC CTCCCTGGCC
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GGGCAGGAGT GCAGAGCTCA GCTGGAGGCG AGGGGGAAGT GCCCAGGAGG CTGATGACAT CACTACCCAG CCCTTCAAAG
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CAGGCTGCCC CGCAGTACCA GGGAGCGACT GAAGTGCCCA TGCCGCTTGC TCCGGAGAAG GTGGGTGCCG GGCAGGGGCT GCTCCAGCCG CCTCACCTCT GCTGGGAGGA CAAACTGTCC CAGCACAGAG GGAGGGAGGG AGGGCAGGCA GCGGGGAGAA GTTTCCCTGT GGTCGTGGGG AGTTGGGAAA AGTTCCCTTC CTTCCGGAGG GAGG -3' (FRAG. NO:2275) (SEQ ID NO:12481)

5'- GAGCTCTTCA ATATTTTAGT GAAAGCTATA GATGAGGCTC CATAGGGGAT AAAGCACAGA CACACCTTTT CAGAGGGCTT GTGGACTCTG GGCAGCCTGT CCATAGACCT CTGTCCCCAA CTGGCAAGTC AGGAAACTCC AGATTAAGGA GCCCCAATGT GGTTGAACAG CCAGGTGCAC AGATGAGTCA ACCACACAGC CAGGCCAGGG AGGGCCTTCA CTCAAGAGCC TACAGCCAGT TCACAGCCAA GCCAGGGCTA GCGCCAGGCC ACCCATAAAC TGATCTGAGA CTCTGTTTCC CTGTCTCCAT GATGATGGGA TCAGGCTTGA TTGCTGGTTT GTAGGCTTGT TATGAATCAA GTCACAGGGA AGAGGAGCTG ATGGGCTGGG GGGACGTCCT CTGGCCCTCC TGTCTCTTCC CCAGATCCAC TGGGCCCACT CTTATCTGTT CTCTTCTGAA GGAAGGGTTT TAAGGCTTCA AAAAAAAATG TTTTGAAAGT CCCTGCCCTT TCCAGCTCCT ACCGTCTCAG CCCTGGGAGT GTAAAGTGCT GCAGATAGTT AGTAAGTCTT TGAGCAAAAC TGAGAAAGCC AGCCTGAGCC TTGACATGGG AGAAACCTCC GCCATACATC TCCGAAGAAA CGGCCGCGTG TCTCAGGGGA GCGCAAACAC CCGTACCCAG GAAACAGGAC AGCTTCTGCC ACTGTCGCCC TTGGGAGCCG TACGTGGCAT GACAAAGAAA TCCCAGGACT CCGCCTGCCC ACCTGGCCAC CCTCTGTTTA CACCTTCCGC GTAAACGCCC ACTGTTTACA TCCAAAACTC AGACACAAAA TAACCACCTC AAGAAGATAA ATAATGATAA GAAATAAATG TTACGCGAGG CAAATTTATT CACATGGGGC TTCCCAGGCC ACTTTGTGGT CAGCCGGGAG GGACGTTTTT GCCGTCCCAC GACTCCAACG GGCAGCCGGG CCTACGCAAA CATGGAAATC TTCCAAGAGC CTCCCTGGCC CCCAGGGCTC AGAGGGTGGC AGAGCGGAGA GCGAAGGTGG CCGCAGCCTT CCCGGCCCCA CAGCCAGCCT GGCTCCAGCT GGGCAGGAGT GCAGAGCTCA GCTGGAGGCG AGGGGGAAGT GCCCAGGAGG CTGATGACAT CACTACCCAG CCCTTCAAAG ATGAGCTGTT CCCGCCGCCA CTCCAGCTCT GGCTTCTGGG CTCCGAGGAG GGGTGGGGAC GGTGGTGACG GTGGGGACAT CAGGCTGCCC CGCAGTACCA GGGAGCGACT GAAGTGCCCA TGCCGCTTGC TCCGGAGAAG GTGGGTGCCG GGCAGGGGCT GCTCCAGCCG CCTCACCTCT GCTGGGAGGA CAAACTGTCC CAGCACAGAG GGAGGGAGGG AGGGCAGGCA GCGGGGAGAA GTTTCCCTGT GGTCGTGGGG AGTTGGGAAA AGTTCCCTTC CTTCCGGAGG GAGG-3' (FRAG.NO:2275) (SEQ ID NO:11830)

5'- GCCCTTCAAA GATGAGCTGT TCCCGCCGCC ACTCCAGCTC TGGCTTCTGG GCTCCGAGGA GGGGTGGGGA CGGTGGTGAC GGTGGGGACA TCAGGCTGCC CCGCAGTACC AGGGAGCGAC TGAAGTGCCC ATGCCGCTTG CTCCGGAGAA GGTGGGTGCC GGGCAGGGGC TGCTCCAGCC GCCTCACCTC TGCTGGGAGG ACAAACTGTC CCAGCACAGA GGGAGGGAGG GAGGGCAGGC AGCGGGGAGA AGTTTCCCTG TGGTCGTGGG GAGTT -3' (FRAG. NO:2275) (SEQ ID NO:11829)

5'- GCCCTTCAAA GATGAGCTGT TCCCGCCGCC ACTCCAGCTC TGGCTTCTGG GCTCCGAGGA GGGGTGGGGA CGGTGGGGAC ATCAGGCTGC CCCGCAGTAC CAGGGAGCGA CTGAAGTGCC CATGCCGCTT GCTCCGGAGA AGGTGGGTGC CGGGCAGGGG CTGCTCCAGC CGCCTCACCT CTGCTGGGAG GACAAACTGT CCCAGCACAG AGGGAGGGAG GGAGGGCAGG CAGCGGGGAG AAGTTTCCCT GTGGTCGTGG GGAGTT-3' (FRAG.NO:2275)(SEQ ID NO:11828)

5'- ATGTTCTCTC CCTGGAAGAT ATCAATGTTT CTGTCTGTTC GTGAGGACTC CGTGCCCACC ACGGCCTCTT TCAGCGCCGA CATGCTCAAT GTCACCTTGC AAGGGCCCAC TCTTAACGGG ACCTTTGCCC AGAGCAAATG CCCCCAAGTG GAGTGGCTGG GCTGGCTCAA CACCATCCAG CCCCCCTTCC TCTGGGTGCT GTTCGTGCTG GCCACCCTAG AGAACATCTT TGTCCTCAGC GTCTTCTGCC TGCACAAGAG CAGCTGCACG GTGGCAGAGA TCTACCTGGG GAACCTGGCC GCAGCAGACC TGATCCTGGC CTGCGGGCTG CCCTTCTGGG CCATCACCAT CTCCAACAAC TTCGACTGGC TCTTTGGGGA GACGCTCTGC CGCGTGGTGA ATGCCATTAT CTCCATGAAC CTGTACAGCA GCATCTGTTT CCTGATGCTG GTGAGCATCG ACCGCTACCT GGCCCTGGTG AAAACCATGT CCATGGGCCG GATGCGCGGC GTGCGCTGGG CCAAGCTCTA CAGCTTGGTG ATCTGGGGGT GTACGCTGCT CCTGAGCTCA CCCATGCTGG TGTTCCGGAC CATGAAGGAG TACAGCGATG AGGGCCACAA CGTCACCGCT TGTGTCATCA GCTACCCATC CCTCATCTGG GAAGTGTTCA CCAACATGCT CCTGAATGTC GTGGGCTTCC TGCTGCCCCT GAGTGTCATC ACCTTCTGCA CGATGCAGAT CATGCAGGTG CTGCGGAACA ACGAGATGCA GAAGTTCAAG GAGATCCAGA CGGAGAGGAG GGCCACGGTG CTAGTCCTGG TTGTGCTGCT GCTATTCATC ATCTGCTGGC TGCCCTTCCA GATCAGCACC TTCCTGGATA CGCTGCATCG CCTCGGCATC CTCTCCAGCT GCCAGGACGA GCGCATCATC GATGTAATCA CACAGATCGC CTCCTTCATG GCCTACAGCA ACAGCTGCCT CAACCCACTG GTGTACGTGA TCGTGGGCAA GCGCTTCCGA AAGAAGTCTT GGGAGGTGTA CCAGGGAGTG TGCCAGAAAG GGGGCTGCAG GTCAGAACCC ATTCAGATGG AGAACTCCAT GGGCACACTG CGGACCTCCA TCTCCGTGGA ACGCCAGATT CACAAACTGC AGGACTGGGC AGGGAGCAGA CAGTGAGCAA ACGCCAGCAG GGCTGCTGTG AATTTGTGTA AGGATTGAGG GACAGTTGCT T -3' (FRAG. NO:2275) (SEQ ID NO:11827)

5'- ATGTTCTCTC CCTGGAAGAT ATCAATGTTT CTGTCTGTTT GTGAGGACTC CGTGCCCACC ACGGCCTCTT TCAGCGCCGA CATGCTCAAT GTCACCTTGC AAGGGCCCAC TCTTAACGGG ACCTTTGCCC AGAGCAAATG CCCCCAAGTG GAGTGGCTGG GCTGGCTCAA CACCATCCAG CCCCCCTTCC TCTGGGTGCT GTTCGTGCTG GCCACCCTAG AGAACATCTT TGTCCTCAGC GTCTTCTGCC TGCACAAGAG CAGCTGCACG GTGGCAGAGA TCTACCTGGG GAACCTGGCC GCAGCAGACC TGATCCTGGC CTGCGGGCTG CCCTTCTGGG CCATCACCAT CTCCAACAAC TTCGACTGGC TCTTTGGGGA GACGCTCTGC CGCGTGGTGA ATGCCATTAT CTCCATGAAC CTGTACAGCA GCATCTGTTT CCTGATGCTG GTGAGCATCG ACCGCTACCT GGCCCTGGTG AAAACCATGT CCATGGGCCG GATGCGCGGC GTGCGCTGGG CCAAGCTCTA CAGCTTGGTG ATCTGGGGGT GTACGCTGCT CCTGAGCTCA CCCATGCTGG TGTTCCGGAC CATGAAGGAG TACAGCGATG AGGGCCACAA CGTCACCGCT TGTGTCATCA GCTACCCATC CCTCATCTGG GAAGTGTTCA CCAACATGCT CCTGAATGTC GTGGGCTTCC TGCTGCCCCT GAGTGTCATC ACCTTCTGCA CGATGCAGAT CATGCAGGTG CTGCGGAACA ACGAGATGCA GAAGTTCAAG GAGATCCAGA CGGAGAGGAG GGCCACGGTG CTAGTCCTGG TTGTGCTGCT GCTATTCATC ATCTGCTGGC TGCCCTTCCA GATCAGCACC TTCCTGGATA CGCTGCATCG CCTCGGCATC CTCTCCAGCT GCCAGGACGA GCGCATCATC GATGTAATCA CACAGATCGC CTCCTTCATG GCCTACAGCA ACAGCTGCCT CAACCCACTG GTGTACGTGA TCGTGGGCAA GCGCTTCCGA AAGAAGTCTT GGGAGGTGTA CCAGGGAGTG TGCCAGAAAG GGGGCTGCAG GTCAGAACCC ATTCAGATGG AGAACTCCAT GGGCACACTG CGGACCTCCA TCTCCGTGGA ACGCCAGATT CACAAACTGC AGGACTGGGC AGGGAGCAGA CAGTGAGCAA ACGCCAGCAG GGCTGCTGTG AATTTGTGTA AGGATTGAGG GACAGTTGCT T -3' (FRAG. NO:2275) (SEQ ID NO:11826)

5'- TGATCCTATC ACAACCTGAG AGTAGTTTTT ACTCCATTTA CAGGTGAGGT CATTGTGGTT CAAGGACGTT AAGTAACTTC CCCAGCTCAC ACGGCTTATA AGTAAGGCAG CCAGGATGTG AACCCAGTAG GACTATCTGG CTGCAAAGTC CCCACCCTCC CTCGCCATCT GTATCCTCCA ATCATCTTCA GTGCTTTGCT GATAGAAGGT ACGGAAATAC GATGCCACAG ACTGTCCAGG AAGACAGAAA CTAGGCAGAT GGGCTGGCCA TGGTCTCCAA GCCAGACTGG AATCTCCAGG TCTGGAATGA TATCATTTTT CTCTTTTAAT AAATTAACTC ACCCACCACA CGGCTTTGAG AGGCTCAAAG GTGACCAACT CCCTTGGGAG GGCCCCGGTT GATAAGGAAG GAATGTGAAT CCTCCCATCA CGGAAGCTTC AAGGAGGTCA AGGGTCCAAC ACTTGAGATT GTTAGTGCTG TTGGTGGATA CTGCAGAATA TCCAGTGGAG CCTCAGATGA AGAACATGAG GCCCCGTTTA GATCCAAGGA TCAGAGGGGG CTCTGTAAGA CCCAGGGGAG TCAGGTGCAC TGGAGCGCGG GCTGCAGAAA ACAGCCTGAG CTCCACCTCG GCTTCTCCTT GCCCTGGCTG GTTGTCCTTA ACCCCTGTCT CCTTCTGGAC CAGTTTTTGT CCTTCCCTTG TGACCTGAGG GGTAACAGCC TCTTTTCCAC TTTCTTTCAG CGCCGACATG CTCAATGTCA CCTTGCAAGG GCCCACTCTT AACGGGACCT TTGCCCAGAG CAAATGCCCC CAAGTGGAGT GGCTGGGCTG GCTCAACACC ATCCAGCCCC CCTTCCTCTG GGTGCTGTTC GTGCTGGCCA CCCTAGAGAA CATCTTTGTC CTCAGCGTCT TCTGCCTGCA CAAGAGCAGC TGCACGGTGG CAGAGATCTA CCTGGGGAAC CTGGCCGCAG CAGACCTGAT CCTGGCCTGC GGGCTGCCCT TCTGGGCCAT CACCATCTCC AACAACTTCG ACTGGCTCTT

TGGGGAGACG CTCTGCCGCG TGGTGAATGC CATTATCTCC ATGAACCTGT ACAGCAGCAT CTGTTTCCTG ATGCTGGTGA
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TTGGTGATCT GGGGGTGTAC GCTGCTCCTG AGCTCACCCA TGCTGGTGTT CCGGACCATG AAGGAGTACA GCGATGAGGG
CCACAACGTC ACCGCTTGTG TCATCAGCTA CCCATCCCTC ATCTGGGAAG TGTTCACCAA CATGCTCCTG AATGTCGTGG
GCTTCCTGCT GCCCCTGAGT GTCATCACCT TCTGCACGAT GCAGATCATG CAGGTGCTGC GGAACAACGA GATGCAGAAG
TTCAAGGAGA TCCAGACGGA GAGGAGGGCC ACGGTGCTAG TCCTGGTTGT GCTGCTGCTA TTCATCATCT GCTGGCTGCC
CTTCCAGATC AGCACCTTCC TGGATACGCT GCATCGCCTC GGCATCCTCT CCAGCTGCCA GGACGAGCGC ATCATCGATG
TAATCACACA GATCGCCTCC TTCATGGCCT ACAGCAACAG CTGCCTCAAC CCACTGGTGT ACGTGATCGT GGGCAAGCGC
TTCCGAAAGA AGTCTTGGGA GGTGTACCAG GGAGTGTGCC AGAAAGGGGG CTGCAGGTCA GAACCCATTC AGATGGAGAA
CTCCATGGGC ACACTGCGGA CCTCCATCTC CGTGGAACGC CAGATTCACA AACTGCAGGA CTGGGCAGGG AGCAGACAGT
GAGCAAACGC CAGCAGGGCT GCTGTGAATT TGTGTAAGGA TTGAGGGACA GTTGCTTTTC AGCATGGGCC CAGGAATGCC
AAGGAGACAT CTATGCACGA CCTTGGGAAA TGAGTGTTGA TGTCTCCGGT AAAACACCGG AGACTAATTC CTGCCCTGCC
CAATTTTCGA GGGAGCATGG CTGTGAGGAT GGGGTGAACT CACGCACAGC CAAGGACTCC AAAATCACAA CAGCATTACT
GTTCTTATTT GCTGCCACAC CTGAGCCAGC CTGCTCCTTC CCAGGAGTGG AGGAGGCCTG GGGGAGGGAG AGGAGTGACT
GAGCTTCCCT CCCGTGTGTT CTCCGTCCCT GCCCCAGCAA GACAACTTAG ATCTCCAGGA GAACTGCCAT CCACGTTTGG
TGCAATGGCT GAGTGCACAA GTGAGTTGTT GCCCTGGGTT TCTTTAATCT ATCAGCTAGA ACTTTGAAGG ACAATTTCTT
GCATTAATAA AGGTTAAGCC CTGAGGGGTC CCTTGATAAC AACCTGGAGA CCAGGATTTT ATGGCTCCCC TCACTGATGG
ACAAGGAGGT CTGTGCCAAA GAAGAATCAA TAAGCACATA TGAGCACTTC TGTATATCAG TATTGAGCAC TGTAGGCA -3'
(FRAG. NO:2275) (SEQ ID NO:11825)
5'- CTGCAGAAAA CAGCCTGAGC TCCACCTCGG CTTCTCCTTG CCCTGGCTGG TTGTCCTTAA CCCCTGTCTC CTTCTGGACC
AGTTTTTGTC CTTCCCTTGT GACCCTGAGG GGTAACAGCC TCTTTTCCAC TTTCTTTCAG CGCCGACATG CTCAATGTCA
CCTTGCAAGG GCCCACTCTT AACGGGACCT TTGCCCAGAG CAAATGCCCC CAAGTGGAGT GGCTGGGCTG GCTCAACACC
ATCCAGCCCC CCTTCCTCTG GGTGCTGTTC GTGCTGGCCA CCCTAGAGAA CATCTTTGTC CTCAGCGTCT TCTGCCTGCA
CAAGAGCAGC TGCACGGTGG CAGAGATCTA CCTGGGGAAC CTGGCCGCAG CAGACCTGAT CCTGGCCTGC GGGCTGCCCT
TCTGGGCCAT CACCATCTCC AACAACTTCG ACTGGCTCTT TGGGGAGACG CTCTGCCGCG TGGTGAATGC CATTATCTCC
ATGAACCTGT ACAGCAGCAT CTGTTTCCTG ATGCTGGTGA GCATCGACCG CTACCTGGCC CTGGTGAAAA CCATGTCCAT
GGGCCGGATG CGCGGCGTGC GCTGGGCCAA GCTCTACAGC TTGGTGATCT GGGGGTGTAC GCTGCTCCTG AGCTCACCCA
TGCTGGTGTT CCGGACCATG AAGGAGTACA GCGATGAGGG CCACAACGTC ACCGCTTGTG TCATCAGCTA CCCATCCCTC
ATCTGGGAAG TGTTCACCAA CATGCTCCTG AATGTCGTGG GCTTCCTGCT GCCCCTGAGT GTCATCACCT TCTGCACGAT
GCAGATCATG CAGGTGCTGC GGAACAACGA GATGCAGAAG TTCAAGGAGA TCCAGACGGA GAGGAGGGCC ACGGTGCTAG
TCCTGGTTGT GCTGCTGCTA TTCATCATCT GCTGGCTGCC CTTCCAGATC AGCACCTTCC TGGATACGCT GCATCGCCTC
GGCATCCTCT CCAGCTGCCA GGACGAGCGC ATCATCGATG TAATCACACA GATCGCCTCC TTCATGGCCT ACAGCAACAG
CTGCCTCAAC CCACTGGTGT ACGTGATCGT GGGCAAGCGC TTCCGAAAGA AGTCTTGGGA GGTGTACCAG GGAGTGTGCC
AGAAAGGGGG CTGCAGGTCA GAACCCATTC AGATGGAGAA CTCCATGGGC ACACTGCGGA CCTCCATCTC CGTGGAACGC
CAGATTCACA AACTGCAGGA CTGGGCAGGG AGCAGACAGT GAGCAAACGC CAGCAGGGCT GCTGTGAATT TGTGTAAGGA
TTGAGGGACA GTTGCTTTTC AGCATGGGCC CAGGAATGCC AAGGAGACAT CTATGCACGA CCTTGGGAAA TGAGTTGATG
TCTCCGGTAA AACACCGGAG ACTAATTCCT GNCCTGCCCA ATTTTGCAGG GAGCATGGCT GTGAGGATGG GGTGAACTCA
CGCACAGCCA AGGACTCCAA AATCACAACA GCATTACTGT TCTTATTTGC TGCCACACCT GAGCCAGCCT GCTCCTTCCC
AGGAGTGGAG GAGGCCTGGG GGCAGGGAGA GGAGTGACTG AGCTTCCCTC CCGTGTGTTC TCCGTCCCTG CCCCAGCAAG
ACAACTTAGA TCTCCAGGAG AACTGCCATC CAGCTTTGGT GCAATGGCTG AGTGCACAAG TGAGTTGTTG CCCTGGGTTT
CTTTAATCTA TTCAGCTAGA ACTTTGAAGG ACAATTTCTT GCATTAATAA AGGTTAAGCC CTGAGGGGTC CCTGATAACA
ACCTGGAGAC CAGGATTTTA TGGCTCCCCT CACTGATGGA CAAGGAGGGT CTGTGCCAAA GAAGAATCCA ATAAGCACAT
ATTGAGCACT TGCTGTATAT GCAGTATTGA GCACTGTAGG CAAGAGGGAA GAAAGAGAAG GAGCCATCTC CATCTTGAAG
GAACTCAAAG ACTCAAGTGG GAACGACTGG CACTGCCACC ACCAGAAAGC TGTTCGACGA GACGGTCGAG CAGGGTGCTG
TGGGTGATAT GGACAGCAGA AGGGGGAGAC CAAGGTTCCA GCTCAACCAA TAACTATTGC ACAACCACCT GTCCCTGCCT
CAGTTCCCTC TTCTGTAACA TGAAGTCGTT GTGAGGGTTA AAGGCAGTAA CAGGTATAAA GTACTTAGAA AAGCAAAGGG
TGCTACGTAC ATGTGAGGCA TCATTACGCA GACGTAACTG GGATATGTTT ACTATAAGGA AAAGACACTG AGGTCTAGA -3'
(FRAG. NO:2275) (SEQ ID NO:11824)
5'- AAATGATAGA CCGTCAATAA TTTGTTAAAT GCTTTTTAAA ATGAATGCTT TAAGCCGGGT GCAGTGCCTC ACATCTGTAA
TCCCAGCACT TTGGAGCCGA GCGGGTGGAT TGTGTGAGGT CAGGAGTTCG AGACCAACCT GGCCAACATG GCAAAACCTC
ACTCTCTACC AAAAATACAA AAATTAGCCA GGCATGGTGG CAGGCACCTG TGATCCCAGC TACTCAGGAG GCTGAGACAG
GAGAATCGCT TGAACCCGGG AGGCAAGGTT GCAGTGAGCC AAGATTACGC CATTGTACTC CAGCCTGGGT GACAGAGAGA
GACTCCGTCT CAAAAAAAAA AAAAAAAAAA AAAAAATTAC GCTTCAAACA CATGATCTCT CACCACTGTT GAATTTTCTT
TCTATGAGCC CAGGAGGGCC TCTCAGAGAG GAAAGCTCCT AGGTCTTCCT TTCCCTCTGC AAACTCCCTG CCTTGAAGGT
TCAGAAGGAC TGTGCGTGCT CGTTGCATCC TTTGCAAGTG TCCAAACCCT GATCCCAGCT GTGCTTAGGG GTTCCTGCAA
ACCTTTTCCA GGTGTTAATT ACCTCCCACT TCATTTCCTG TTTACCAACT CAGCTTTTTG TTTTAGTGTG TTTGAATTCC
CTGAACTGAC CGTTGTCTGA TCTCCACCTC CCAACTGAAT TAGGGGAGCT GGGCTTCTGG AAACCCAGGT GCCGGGTGTT
GCAGAGTGGC TGAAAGCTGG GATGTGGCAG ATCCGTGGCT ACATTCATGC ACACACACAC ACCCACATAC CCACACATGC
ACACACACAC ACACACCCGC ACTCACACAC TTGGACATGC ATAGACCACA GCTTTCCACA CCCTTCCTAG ACAGGGGTCA
CTTGGTATCC TGGAGAGAGT GTGAAGTCCT GGAATGGAAA GAGGGGGGAT TAAGCCCCAC CTCTAGCCAT GGGACTGAGA
CAAGTCACCA CCAACCCATC TGCGCCTTGT TTACCTCCTC TGTGAGGCAA GCACAGAGCC CATGCCTGCC CCCCTGGATG
GGAGTGATGT GAAACTTGAA GGGCGGTCAG AGCAAGGGTC GGGAATGGAA GGCCCTTGGG AAAAAAGGCC CTTTCAACTA
GGGGCACAGA GGAGGCCCTG GGCTGAGAAC TTGACAGCAC CTTGTAATTG GTAAGCCAAG CCCGAAGGGA CTGGAAATAC
TCAGATGTGT CTGTCTCCCT TATTAGGTTC AAAGTCCCTC AAGACCCTGT CTCCATCACA GTGCTCCAGT CCAGACCCCT
CCTCTGAGCT CCAGACCCTG CTGGACCCAA CCAGCCCTAT GGGGTCGCAT CCCCACCTGC CTGGAATTCT CCAAAGAACC
TCCCCTTTAA CAGTTCCAGC CTTTAACAGT TCCAGTCTAA ACACATGACC TTTCTCCTCT AAATCAGCCC CCCATCTCTG
CCTTTGCAGG AGATGGAAGC CATGACACCT GCCTCGCCCC TGTCCTCACC CCATCCATGT CCAATCAAGC ACTAGGCATG
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AATCCACTCC CCTCACAGGC GCGTTTGGGA CCCCATGTTC TATGCTCTCA CAGGACCTTT TGCTTGATTT TTCACTGTAC
TTAGGTCAGT TTGCAGTTAT TAAGTGACTG AGCAATGTCT GGCTTCTCCA GTAGACTGTC AGCTCCTAGC CATTGTATAC
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AGAATGCGTG TATTTGGCAA TCCCCAGCCC CTGTGCCATC TAACCATCTT TTCTTCTCTG TTCAGCCCAG GTGTGGCCTC
ACTCACATCC CACTCTGAGT CCAAATGTTC TCTCCCTGGA AGATATCAAT GTTTCTGTCT GTTCGTGAGG ACTCCGTGCC

CACCACGGCC TCTTTCAGGT GAGTCAAAGG GATTCCTCAG TTCACTAGTT AGGGGAGGTG GGCAGACACC CTGGAGAACT CCCTGGAAAG CTCAACTCTC ATGCCCCGGA CAACAGTTGA AGGAACCATG GTGATGTTAA GCCCAAAGAC AAAACCTCTC AGGTGTCCAA GTCCCTGTTG GAATCTTGGG AGCAGAGGGA ATGTTCTGTG GTCTAGAGGA AGAGGGGCTC AGGGAGGAGA AGGGCACATT CCTGGTTGTT ATATGTTTCT ATCTATCCCA GATGAACTTG GAAGTGAAGG GAAGAGAGTT AAACATTAAA GTAAATACCC AGTGGATCAG ACAGCAATGT GCCAGATTGC CTTGGAAACA AAATATCTCC AACACATGGC TGACATTTGG TGGGAGATCA GAACACCCTA AAGAGAGAAT TTAAGGGGAG GGGGAGGAGG ACCTGAGCCA GAGTAGAAGC AGAGGATAGG GAGATCTGTT CTTGGGGACA GCATTTGCAA GAAACAAGGC TGAGGGGTCC ACTCCAACCT CTCCACCCTG CTGCAGGTGC TGCCTATGAT GAAGATGAGC AGATGGCCAT CTCAGCTGGG GCCACAGTGC ACTGGACCTA TAGTTTCCAA TTCCGCACTC AGCAGGCATC TTTCTGATGA TCCGATGGCT TCTCAGAGCC AGGGATGGGC CAGGATCCAT CCCCTTGGCT ACTGTCTTGC TGAGAAATTT ATAAGCAGCA TCTGGTGCTA TACTTTGGTC TCTAGTGAGT TAGCTCATGA AAGATGATAG ACTCTCCAAG CCAGGGGTAT GCAGGAAATG GGTTTTCTGT AGCTACAGAA ATGGGGTTGA GGGTTGGACC AAGGGACTAC CCAGGGGAAG TCTTACCTTC AGAGGACTCT GGAAAGGAGG CTGCAAGTTT TCATGGGTCA AGAATTCAGA GCCCAGTAGA GACAGCTTAT CTCTGTTCCA AGATGTCTGG GGCCTTGGTT GGAAGATTCA AAGGCTAGGA AACCAGGAGC CACCAAAAGC GTAACTGGGG CCAGAGGATC CACTTTCAAG GTGGCAAGTT GGTTCCCCCC ATGTGGCTGC TTGAGTATCC TCACATGGCG GCTCACATCC TTCCAAGTAA GCAATGCAAA AGGCCAAGAA AGATGCTGCA AAGATGTTAT GACCTAGCCT CAGAAATCAC ACACCATCCC TGCCACCATT AGTAAGAAGT CCAGCCCACG TCCAGGAGAA GAGGAAGCAG ATTCCTCCTT TTGAAATGAA GAATATCAAG TAATTCGGGG GGCATATGAA AGCCACCACA CACCACAGGG ATCTTTTTAG AGCATACTTC TTATACCATC ACTGTAGTTC CTTAAGACTC AGGGGCAAAG CCTCACTTCC TTAGCACCCA GTGAAGACCA CGCTTACTCC CTCACTCAAC CTCTTGCTAC TTCCCACCTC TCCTGTCCAA CATCTAGTGT CACTTTCCAG AACATACCAA CAGCTTCCCC AGTTCTGTGC CTCTGCTCAG GCTGTTCCCC CTGCCTGGTC CACTTGTCCT CCTTCTTGTC CGGTCAAAAT GCTTCTTATC CTTCAAGACC CAGCTCTAGA GTCACCTCCA ACCCCTTACC CACCAGCCCC CTCTCCAAGT CTGTGTCCCA CAACCCCCCT GCTCCCTCCA GGGCACCCTC CACCCTCTGG GCCACAGTTG TCAGGAGTCA GGCAGGGCAG GGGCCGGGTG GTGTCTTCTT TGTGTTCTTG CACTCAGGGC AGAGCTCAGC ACAGAGCAGA CGCTCAAAAA ACATTTAAAG GATAGAAGCA TTGATTTGTG GGTCCCCCAG TCTGGCTCCA GGATGCCAGC CAGCTGCTCC TAGAAGCAAA CGGACTTTTC CTGGGAAATC CCAGAGGTGA TGATCAGTAA TCTCTCCCGT GACTCGTAGT TCAGCTCTTC CTCCATGAGC CTGACTATCA GTGGACCTTC CAGAAAGAGC CCCTTTTCCT TCTCTCACCC ACAGCACAGG GCACTGGGAA AATGCCCAAT GAGTCCTGCC TCTGGGTTGT GCTTTGGACT TTTCAGTGTG TCTCGCATCC ACTCTTCAAC TTGAATGTTG CAACAGCCAT GAAAAAAGAA ATGCAAAGCG ATTCAGGATG AGAGCAATAC CCTACTCCAA AGAAGGCAAC ATAGAAGCTC AGAGAGATCA AGCAATTTGC CCAAGACCAC ACAGCTAGGA GTGGAACTCA TGGCTGTCCA AGCCCCATGC CTCTGCTGAA GGTAGAGATG AATTACAGCA ACAAGTCTAG AAAGGTGCCT GCCCTATGGT CTGTGAGTCT TGCCTAAGAA TGAAAGAGGA GCCAGTGGGT TAAAGATGAG GTCACCAACA ACGGTGGTGT TGGAGTTTAC CACTGATAAT AAGGGTGCAA AATGTAAATT ACTAATGTTT ATTGAGCCTA GTGCAGTGCG TGGGGCATTT TGCACATTGT CTCTGATCCC TATGACAACC CTGAGAGGTA GTGGTTTTAA CTGCCATGTT ACAGGTGAGG TCATTGTGGT TCAAGGACGT TAAGTAACTT CCCCAGCGTG ACACGGCTTA TAAGTAAGGC AGCCAGGATG TGAACCCAGT AGGACTATCT GGCTGCAAAG TCCCCACCCC CCTCGCCATC TGTATCCTCC AATCACTTCA GTGCTTTGCT GCATAGAAGG TAACGGAAAT CACGATGCCA CAGACTGTCC AGGAAGACAG AAACTAGGCA GATGGGCTGG CCATGGTCTC CAAGCCAGAC TGGAATCTCC AGGTCTGGAA TGATATCATT TTTCTCTTTT AATAAATTAA CTCACCCACC ACACGGCTTT GAGAGGCTCA AAGTTGACCA ACTCCCTTGG GAGGGCCCCG GTTGATAAGG AAGGAACGTG AATCCTCCCA TCACGGAAGC TTCAAGGAGG TCAAGGGTCC AACACTTGAG ATTGTTAGTG CTGTTGGTGG ATACTGGCCA AGGAAATATC CCAGTGGAGC CTCGAGATGA AGAACATGAG GCCCCCGTTT AGAACCAAGG ATCAGAGGGG GCTCTGTAAG ACCCAGGGGA GTCAGGTGCA CTGGAGCGCG GGCATGCAGA AAACAGCCTG AGCTCCACCT CGGCTTCTCC TTGTCCTGGC TGGTTGTCCT TAACCCCTGT CTCCTTCTGG ACCAGTTTTT GTCCTTCCCT TGTGACCGCT GAGGGGTAAC AGCCTCTTTC CACTTTCTTT CAGCGCCGAC ATGCTCAATG TCACCTTGCA AGGGCCCACT CTTAACGGGA CCTTTGCCCA GAGCAAATGC CCCCAAGTGG AGTGGCTGGG CTGGCTCAAC ACCATCCAGC CCCCCTTCCT CTGGGTGCTG TTCGTGCTGG CCACCCTAGA GAACATCTTT GTCCTCAGCG TCTTCTGCCT GCACAAGAGC AGCTGCACGG TGGCAGAGAT CTACCTGGGG AACCTGGCCG CAGCAGACCT GATCCTGGCC TGCGGGCTGC CCTTCTGGGC CATCACCATC TCCAACAACT TCGACTGGCT CTTTGGGGAG ACGCTCTGCC GCGTGGTGAA TGCCATTATC TCCATGAACC TGTACAGCAG CATCTGTTTC CTGATGCTGG TGAGCATCGA CCGCTACCTG GCCCTGGTGA AAACCATGTC CATGGGCCGG ATGCGCGGCG TGCGCTGGGC CAAGCTCTAC AGCTTGGTGA TCTGGGGGTG TACGCTGCTC CTGAGCTCAC CCATGCTGGT GTTCCGGACC ATGAAGGAGT ACAGCGATGA GGGCCACAAC GTCACCGCTT GTGTCATCAG CTACCCATCC CTCATCTGGG AAGTGTTCAC CAACATGCTC CTGAATGTCG TGGGCTTCCT GCTGCCCCTG AGTGTCATCA CCTTCTGCAC GATGCAGATC ATGCAGGTGC TGCGGAACAA CGAGATGCAG AAGTTCAAGG AGATCCAGAC GGAGAGGAGG GCCACGGTGC TAGTCCTGGT TGTGCTGCTG CTATTCATCA TCTGCTGGCT GCCCTTCCAG ATCAGCACCT TCCTGGATAC GCTGCATCGC CTCGGCATCC TCTCCAGCTG CCAGGACGAG CGCATCATCG ATGTAATCAC ACAGATCGCC TCCTTCATGG CCTACAGCAA CAGCTGCCTC AACCCACTGG TGTACGTGAT CGTGGGCAAG CGCTTCCGAA AGAAGTCTTG GGAGGTGTAC CAGGGAGTGT GCCAGAAAGG GGGCTGCAGG TCAGAACCCA TTCAGATGGA GAACTCCATG GGCACACTGC GGACCTCCAT CTCCGTGGAA CGCCAGATTC ACAAACTGCA GGACTGGGCA GGGAGCAGAC AGTGAGCAAA CGCCAGCAGG GCTGCTGTGA ATTTGTGTAA GGATTGAGGG ACAGTTGCTT TTCAGCATGG GCCCAGGAAT GCCAAGGAGA CATCTATGCA CGACCTTGGG AAATGAGTTG ATGTCTCCGG TAAAACACCG GAGACTAATT CCTGCCCTGC CCAATTTTGC AGGGAGCATG GCTGTGAGGA TGGGGTGAAC TCACGCACAG CCAAGGACTC CAAAATCACA ACAGCATTAC TGTTCTTATT TGCTGCCACA CCTGAGCCAG CCTGCTCCTT CCCAGGAGTG GAGGAGGCCT GGGGGCAGGG AGAGGAGTGA CTGAGCTTCC CTCCCGTGTG TTCTCCGTCC CTGCCCCAGC AAGACAACTT AGATCTCCAG GAGAACTGCC ATCCAGCTTT GGTGCAATGG CTGAGTGCAC AAGTGAGTTG TTGCCCTGGG TTTCTTTAAT CTATTCAGCT AGAACTTTGA AGGACAATTT CTTGCATTAA TAAAGGTTAA GCCCTGAGGG GTCCCTGATA ACAACCTGGA GACCAGGATT TTATGGCTCC CCTCACTGAT GGACAAGGAG GTCTGTGCCA AAGAAGAATC CAATAAGCAC ATATTGAGCA CTTGCTGTAT ATGCAGTATT GAGCACTGTA GGCAAGAGGG AAGAAAGAGA AGGAGCCATC TCCATCTTGA AGGAACTCAA AGACTCAAGT GGGAACGACT GGGCACTGCC ACCACCAGAA AGCTGTTCGA TGAGACGGTC GAGCAGGGTG CTGTGGGTGA TATGGACAGC AGAAGGGGGA GCCAGGTTCC AGCTCACCAA TACTATTGCA CACCACCTGT CCTGCCTC -3' (FRAG. NO:2275) (SEQ ID NO:11823)

5'- CAGATTCACA AACTGCAGGA CTGGGCAGGG AGCAGACAGT GAGCAAACGC CAGCAGGGCT GCTGTGAATT TGTGTAAGGA TTGAGGGACA GTTGCTTTTC AGCATGGGCC CAGGAATGCC AAGGAGACAT CTATGCACGA CCTTGGGAAA TGAGTTGATG TCTCCGGTAA AACACCGGAG ACTAATTCCT GCCCTGCCCA ATTTTGCAGG GAGCATGGCT GTGAGGATGG GGTGAACTCA CGCACAGCCA AGGACTCCAA AATCACAACA GCATTACTGT TCTTATTTGC TGCCACACCT GAGCCAGCCT GCTCCTTCCC AGGAGTGGAG GAGGCCTGGG GGGAGGGAGA GGAGTGACTG AGCTTCCCTC CCGTGTGTTC TCCGTCCCTG CCCCAGCAAG ACAACTTAGA TCTCCAGGAG AACTGCCATC CAGCTTTGGT GCAATGGCTG AGTGCACAAG TGAGTTGTTG CCCTGGGTTT CTTTAATCTA TTCAGCTAGA ACTTTGAAGG ACAATTTCTT GCATTAATAA AGGTTAAGCC CTGAGGGGTC CCTGATAACA ACCTGGAGAC CAGGATTTTA TGGCTCCCCT CACTGATGGA CAAGGAGGTC TGTGCCAAAG AAGAATCCAA TAAGCACATA TTGAGCACTT GCTGTATATG CAGTATTGAG CACTGTAGGC AAGACCCAAG AAAGAGAAGG AGCCATCTCC ATCTTGAAGG AACTCAAAGA CTCAAGTGGG AACGACTGGG CACTGCCACC ACCAGAAAGC TGTTCGACGA GACGGTCGAG CAGGGTGCTG

TGGGTGATAT GGACAGCAGA AGGGGGAGAC CAAGGTTCCA GCTCAACCAA TAACTATTGC ACAACCACCT GTCCCTGCCT CAGTTCCCTT TTATGTAACA TGAAGTCGTT GTGAGGGTTA AAGGCAGTAA CAGGTATAAA GTACTTAGAA AAGCAAAGGG TGCTACGTAC ATGTGAGGCA TCATTACGCA GACGTAACTG GGATATGTTT ACTATAAGGA AAAGACACTG AGGTCTAGAA ATAGCTCCGT GGAGCAGAAT CAGTATTGGG AGCCGGTGGC GGTGTGAAGC ACCAGTGTCT GGCACACAGT AGGTGCTCAT TGGCTCCCTT CCACCTGTCA TTCCCACCAC CCTGAGGCCC CAACCGCCAC ACACACAGGA GCATTTGGAG AGAAGGCCAT GTCTTCAAAG TCTGATTTGT GATGAGGCAG AGGAAGATAT TTCTAATCGG TCTTGCCCAG AGGATCACAG TGCTGAGACC CCCCACCACC AGCCGGTACC TGGGAAGGGG GAGAGTGCAG GCCTGCTCAG GGACTGTTCC TGTCTCAGCA ACCAAGGGAT TGTTCCTGTC AATCAATGGT TTATTGGAAG GTGGCCCAGT ATGAGCCCTA GAAGAGTGTG AAAAGGAATG GCAATGGTGT TCACCATCGG CAGTGCCAGG GCAGCACTCA TTCACTTGAT AAATGAATAT TTATTAGCTG GTTGGAGAGC TAGAACCTGG AGAGCTAGAA CCTGGAGAAC TAGAACCTGG AGGGCTAGAA CCTGGAGAGG CTAGAACCAA GAAGGGCTAG AACCTGGAGG GGCTAGAACC TAGAGAAGCT AAAACCTGAG CTAGAAGCTG GAGGACTAGA ACCTGGAGGG CTGGAATCTG AAGGGCTAGA ACCTGGAGGG CTGGAATCTG GAGAGCTAGA ACCTGGAGGG CTAGAACCTG GAGGGCTAGA ACCTAGAAGG GCTAGAACCT GGAGGGCTGG AATCTGGAGA GCTAGAACCT GGAGGGCTAG AACCTGGAGG GCTAGAACCT AGAAGGGCTA GAACCTGGAG GGCTAGAACC TGGCAGGTTA GAACCTAGAA GGGCTAGAAC CTGGAGAGCC AGAACCTGGA GGGCTAGAAC CTGGAAGGGC TAGAACCTGT AGAGCTAGAA CATGGAGAGC TAGAACCCGG CAGGCTAGAA CCTGGCAAGC TAGAACCTGG AGGGAATGAA CCTGGAGGGC TAGAACCTGG AGAATGAGAA AAATTTACAT GGCAAAGAGC CCATAAATCC TGACCAATCC AACTCTGAAT TTTAAAGCAA AAGCGTGAAA AAAAAGATTC CCTCCTTACC CCCAACCCAC TCTTTTTTCC CACCACCCAC TCTCCTCTGC CTCAGTAAGT ATCTGGAGGA AGAAAAACAGG TGAAAGAAGA AGTAAAAACC ATTTAGTATT AGTATTAGAA TGAAGTCAAA CTGTGCCACA CATGGTGAAT GAAAAAAAAA AAAAAGAGGC TGTGTTTTGT CACACAGGGC AGTCATTCAG CACCAGAGCA CGTGATGGTC TGAGACTCTC TTAGGAGCAG AGCTCTGCCG CAATGGCCAT GTGGGGATCC ACACCTGGTC TGAGGGGCAA CTGAGTCTGC GGGAGAAGAG CGGCCCTATG CATGGTGTAG ATGCCCTGAT AAAGAACATC TGTCCTGTGA AAGACTCAAT GAGCTGTTAT GTTGTAAACA GGAAGCATTT CACATCCAAA CGAGAAAATC ATGTAAACAT GTGTCTTTTC TGTAGAGCAT AATAAATGGA TGAGGTTTTT GCAAAAAAAA AAAAAAAAA -3' (FRAG. NO:2275) (SEQ ID NO:11822)

5'- GAGCTCTTCA ATATTTTAGT GAAAGCTATA GATGAGGCTC CATAGGGGAT AAAGCACAGA CACACCTTTT CAGAGGGCTT GTGGACTCTG GGCAGCCTGT CCATAGACCT CTGTCCCCAA CTGGCAAGTC AGGAAACTCC AGATTAAGGA GCCCCAATGT GGTTGAACAG CCAGGTGCAC AGATGAGTCA ACCACACAGC CAGGCCAGGG AGGGCCTTCA CTCAAGAGCC TACAGCCAGT TCACAGCCAA GCCAGGGCTA GCGCCAGGCC ACCCATAAAC TGATCTGAGA CTCTGTTTCC CTGTCTCCAT GATGATGGGA TCAGGCTTGA TTGCTGGTTT GTAGGCTTGT TATGAATCAA GTCACAGGGA AGAGGAGCTG ATGGGCTGGG GGGACGTCCT CTGGCCCTCC TGTCTCTTCC CCAGATCCAC TGGGCCCACT CTTATCTGTT CTCTTCTGAA GGAAGGGTTT TAAGGCTTCA AAAAAAAATG TTTTGAAAGT CCCTGCCCTT TCCAGCTCCT ACCGTCTCAG CCCTGGGAGT GTAAAGTGCT GCAGATAGTT AGTAAGTCTT TGAGCAAAAC TGAGAAAGCC AGCCTGAGCC TTGACATGGG AGAAACCTCC GCCATACATC TCCGAAGAAA CGGCCGCGTG TCTCAGGGGA GCGCAAACAC CCGTACCCAG GAAACAGGAC AGCTTCTGCC ACTGTCGCCC TTGGGAGCCG TACGTGGCAT GACAAAGAAA TCCCAGGACT CCGCCTGCCC ACCTGGCCAC CCTCTGTTTA CACCTTCCGC GTAAACGCCC ACTGTTTACA TCCAAAACTC AGACACAAAA TAACCACCTC AAGAAGATAA ATAATGATAA GAAATAAATG TTACGCGAGG CAAATTTATT CACATGGGGC TTCCCAGGCC ACTTTGTGGT CAGCCGGGAG GGACGTTTTT GCCGTCCCAC GACTCCAACG GGCAGCCGGG CCTACGCAAA CATGGAAATC TTCCAAGAGC CTCCCTGGCC CCCAGGGCTC AGAGGGTGGC AGAGCGGAGA GCGAAGGTGG CCGCAGCCTT CCCGGCCCCA CAGCCAGCCT GGCTCCAGCT GGGCAGGAGT GCAGAGCTCA GCTGGAGGCG AGGGGGAAGT GCCCAGGAGG CTGATGACAT CACTACCCAG CCCTTCAAAG ATGAGCTGTT CCCGCCGCCA CTCCAGCTCT GGCTTCTGGG CTCCGAGGAG GGGTGGGGAC GGTGGTGACG GTGGGGACAT CAGGCTGCCC CGCAGTACCA GGGAGCGACT GAAGTGCCCA TGCCGCTTGC TCCGGAGAAG GTGGGTGCCG GGCAGGGGCT GCTCCAGCCG CCTCACCTCT GCTGGGAGGA CAAACTGTCC CAGCACAGAG GGAGGGAGGG AGGGCAGGCA GCGGGGAGAA GTTTCCCTGT GGTCGTGGGG AGTTGGGAAA AGTTCCCTTC CTTCCGGAGG GAGG-3' (FRAG..NO:2275) (SEQ ID NO:11821)

5'- GCCCTTCAAA GATGAGCTGT TCCCGCCGCC ACTCCAGCTC TGGCTTCTGG GCTCCGAGGA GGGGTGGGGA CGGTGGTGAC GGTGGGGACA TCAGGCTGCC CCGCAGTACC AGGGAGCGAC TGAAGTGCCC ATGCCGCTTG CTCCGGAGAA GGTGGGTGCC GGGCAGGGGC TGCTCCAGCC GCCTCACCTC TGCTGGGAGG ACAAACTGTC CCAGCACAGA GGGAGGGAGG GAGGGCAGGC AGCGGGGAGA AGTTTCCCTG TGGTCGTGGG GAGTT -3' (FRAG.NO:2275) (SEQ ID NO:11820)

5'- GCCCTTCAAA GATGAGCTGT TCCCGCCGCC ACTCCAGCTC TGGCTTCTGG GCTCCGAGGA GGGGTGGGGA CGGTGGGGAC ATCAGGCTGC CCCGCAGTAC CAGGGAGCGA CTGAAGTGCC CATGCCGCTT GCTCCGGAGA AGGTGGGTGC CGGGCAGGGG CTGCTCCAGC CGCCTCACCT CTGCTGGGAG GACAAACTGT CCCAGCACAG AGGGAGGGAG GGAGGGCAGG CAGCGGGGAG AAGTTTCCCT GTGGTCGTGG GGAGTT-3' (FRAG.NO:2275) (SEQ ID NO:11819)

5'- ATGTTCTCTC CCTGGAAGAT ATCAATGTTT CTGTCTGTTC GTGAGGACTC CGTGCCCACC ACGGCCTCTT TCAGCGCCGA CATGCTCAAT GTCACCTTGC AAGGGCCCAC TCTTAACGGG ACCTTTGCCC AGAGCAAATG CCCCCAAGTG GAGTGGCTGG GCTGGCTCAA CACCATCCAG CCCCCCTTCC TCTGGGTGCT GTTCGTGCTG GCCACCCTAG AGAACATCTT TGTCCTCAGC GTCTTCTGCC TGCACAAGAG CAGCTGCACG GTGGCAGAGA TCTACCTGGG GAACCTGGCC GCAGCAGACC TGATCCTGGC CTGCGGGCTG CCCTTCTGGG CCATCACCAT CTCCAACAAC TTCGACTGGC TCTTTGGGGA GACGCTCTGC CGCGTGGTGA ATGCCATTAT CTCCATGAAC CTGTACAGCA GCATCTGTTT CCTGATGCTG GTGAGCATCG ACCGCTACCT GGCCCTGGTG AAAACCATGT CCATGGGCCG GATGCGCGGC GTGCGCTGGG CCAAGCTCTA CAGCTTGGTG ATCTGGGGGT GTACGCTGCT CCTGAGCTCA CCCATGCTGG TGTTCCGGAC CATGAAGGAG TACAGCGATG AGGGCCACAA CGTCACCGCT TGTGTCATCA GCTACCCATC CCTCATCTGG GAAGTGTTCA CCAACATGCT CCTGAATGTC GTGGGCTTCC TGCTGCCCCT GAGTGTCATC ACCTTCTGCA CGATGCAGAT CATGCAGGTG CTGCGGAACA ACGAGATGCA GAAGTTCAAG GAGATCCAGA CGGAGAGGAG GGCCACGGTG CTAGTCCTGG TTGTGCTGCT GCTATTCATC ATCTGCTGGC TGCCCTTCCA GATCAGCACC TTCCTGGATA CGCTGCATCG CCTCGGCATC CTCTCCAGCT GCCAGGACGA GCGCATCATC GATGTAATCA CACAGATCGC CTCCTTCATG GCCTACAGCA ACAGCTGCCT CAACCCACTG GTGTACGTGA TCGTGGGCAA GCGCTTCCGA AAGAAGTCTT GGGAGGTGTA CCAGGGAGTG TGCCAGAAAG GGGGCTGCAG GTCAGAACCC ATTCAGATGG AGAACTCCAT GGGCACACTG CGGACCTCCA TCTCCGTGGA ACGCCAGATT CACAAACTGC AGGACTGGGC AGGGAGCAGA CAGTGAGCAA ACGCCAGCAG GGCTGCTGTG AATTTGTGTA AGGATTGAGG GACAGTTGCT T -3' (FRAG. NO:2275) (SEQ ID NO:11818)

5'- ATGTTCTCTC CCTGGAAGAT ATCAATGTTT CTGTCTGTTT GTGAGGACTC CGTGCCCACC ACGGCCTCTT TCAGCGCCGA CATGCTCAAT GTCACCTTGC AAGGGCCCAC TCTTAACGGG ACCTTTGCCC AGAGCAAATG CCCCCAAGTG GAGTGGCTGG GCTGGCTCAA CACCATCCAG CCCCCCTTCC TCTGGGTGCT GTTCGTGCTG GCCACCCTAG AGAACATCTT TGTCCTCAGC GTCTTCTGCC TGCACAAGAG CAGCTGCACG GTGGCAGAGA TCTACCTGGG GAACCTGGCC GCAGCAGACC TGATCCTGGC CTGCGGGCTG CCCTTCTGGG CCATCACCAT CTCCAACAAC TTCGACTGGC TCTTTGGGGA GACGCTCTGC CGCGTGGTGA ATGCCATTAT CTCCATGAAC CTGTACAGCA GCATCTGTTT CCTGATGCTG GTGAGCATCG ACCGCTACCT GGCCCTGGTG AAAACCATGT CCATGGGCCG GATGCGCGGC GTGCGCTGGG CCAAGCTCTA CAGCTTGGTG ATCTGGGGGT GTACGCTGCT CCTGAGCTCA CCCATGCTGG TGTTCCGGAC CATGAAGGAG TACAGCGATG AGGGCCACAA CGTCACCGCT TGTGTCATCA GCTACCCATC CCTCATCTGG GAAGTGTTCA CCAACATGCT CCTGAATGTC GTGGGCTTCC TGCTGCCCCT GAGTGTCATC

ACCTTCTGCA CGATGCAGAT CATGCAGGTG CTGCGGAACA ACGAGATGCA GAAGTTCAAG GAGATCCAGA CGGAGAGGAG
GGCCACGGTG CTAGTCCTGG TTGTGCTGCT GCTATTCATC ATCTGCTGGC TGCCCTTCCA GATCAGCACC TTCCTGGATA
CGCTGCATCG CCTCGGCATC CTCTCCAGCT GCCAGGACGA GCGCATCATC GATGTAATCA CACAGATCGC CTCCTTCATG
GCCTACAGCA ACAGCTGCCT CAACCCACTG GTGTACGTGA TCGTGGGCAA GCGCTTCCGA AAGAAGTCTT GGGAGGTGTA
CCAGGGAGTG TGCCAGAAAG GGGGCTGCAG GTCAGAACCC ATTCAGATGG AGAACTCCAT GGGCACACTG CGGACCTCCA
TCTCCGTGGA ACGCCAGATT CACAAACTGC AGGACTGGGC AGGGAGCAGA CAGTGAGCAA ACGCCAGCAG GGCTGCTGTG
AATTTGTGTA AGGATTGAGG GACAGTTGCT T -3' (FRAG. NO:2275) (SEQ ID NO:11817)

5'- TGATCCTATC ACAACCTGAG AGTAGTTTTT ACTCCATTTA CAGGTGAGGT CATTGTGGTT CAAGGACGTT AAGTAACTTC
CCCAGCTCAC ACGGCTTATA AGTAAGGCAG CCAGGATGTG AACCCAGTAG GACTATCTGG CTGCAAAGTC CCCACCCTCC
CTCGCCATCT GTATCCTCCA ATCATCTTCA GTGCTTTGCT GATAGAAGGT ACGGAAATAC GATGCCACAG ACTGTCCAGG
AAGACAGAAA CTAGGCAGAT GGGCTGGCCA TGGTCTCCAA GCCAGACTGG AATCTCCAGG TCTGGAATGA TATCATTTTT
CTCTTTTAAT AAATTAACTC ACCCACCACA CGGCTTTGAG AGGCTCAAAG GTGACCAACT CCCTTGGGAG GGCCCCGGTT
GATAAGGAAG GAATGTGAAT CCTCCCATCA CGGAAGCTTC AAGGAGGTCA AGGGTCCAAC ACTTGAGATT GTTAGTGCTG
TTGGTGGATA CTGCAGAATA TCCAGTGGAG CCTCAGATGA AGAACATGAG GCCCCGTTTA GATCCAAGGA TCAGAGGGGG
CTCTGTAAGA CCCAGGGGAG TCAGGTGCAC TGGAGCGCGG GCTGCAGAAA ACAGCCTGAG CTCCACCTCG GCTTCTCCTT
GCCCTGGCTG GTTGTCCTTA ACCCCTGTCT CCTTCTGGAC CAGTTTTTGT CCTTCCCTTG TGACCTGAGG GGTAACAGCC
TCTTTTCCAC TTTCTTTCAG CGCCGACATG CTCAATGTCA CCTTGCAAGG GCCCACTCTT AACGGGACCT TTGCCCAGAG
CAAATGCCCC CAAGTGGAGT GGCTGGGCTG GCTCAACACC ATCCAGCCCC CCTTCCTCTG GGTGCTGTTC GTGCTGGCCA
CCCTAGAGAA CATCTTTGTC CTCAGCGTCT TCTGCCTGCA CAAGAGCAGC TGCACGGTGG CAGAGATCTA CCTGGGGAAC
CTGGCCGCAG CAGACCTGAT CCTGGCCTGC GGGCTGCCCT TCTGGGCCAT CACCATCTCC AACAACTTCG ACTGGCTCTT
TGGGGAGACG CTCTGCCGCG TGGTGAATGC CATTATCTCC ATGAACCTGT ACAGCAGCAT CTGTTTCCTG ATGCTGGTGA
GCATCGACCG CTACCTGGCC CTGGTGAAAA CCATGTCCAT GGGCCGGATG CGCGGCGTGC GCTGGGCCAA GCTCTACAGC
TTGGTGATCT GGGGGTGTAC GCTGCTCCTG AGCTCACCCA TGCTGGTGTT CCGGACCATG AAGGAGTACA GCGATGAGGG
CCACAACGTC ACCGCTTGTG TCATCAGCTA CCCATCCCTC ATCTGGGAAG TGTTCACCAA CATGCTCCTG AATGTCGTGG
GCTTCCTGCT GCCCCTGAGT GTCATCACCT TCTGCACGAT GCAGATCATG CAGGTGCTGC GGAACAACGA GATGCAGAAG
TTCAAGGAGA TCCAGACGGA GAGGAGGGCC ACGGTGCTAG TCCTGGTTGT GCTGCTGCTA TTCATCATCT GCTGGCTGCC
CTTCCAGATC AGCACCTTCC TGGATACGCT GCATCGCCTC GGCATCCTCT CCAGCTGCCA GGACGAGCGC ATCATCGATG
TAATCACACA GATCGCCTCC TTCATGGCCT ACAGCAACAG CTGCCTCAAC CCACTGGTGT ACGTGATCGT GGGCAAGCGC
TTCCGAAAGA AGTCTTGGGA GGTGTACCAG GGAGTGTGCC AGAAAGGGGG CTGCAGGTCA GAACCCATTC AGATGGAGAA
CTCCATGGGC ACACTGCGGA CCTCCATCTC CGTGGAACGC CAGATTCACA AACTGCAGGA CTGGGCAGGG AGCAGACAGT
GAGCAAACGC CAGCAGGGCT GCTGTGAATT TGTGTAAGGA TTGAGGGACA GTTGCTTTTC AGCATGGGCC CAGGAATGCC
AAGGAGACAT CTATGCACGA CCTTGGGAAA TGAGTGTTGA TGTCTCCGGT AAAACACCGG AGACTAATTC CTGCCCTGCC
CAATTTTCGA GGGAGCATGG CTGTGAGGAT GGGGTGAACT CACGCACAGC CAAGGACTCC AAAATCACAA CAGCATTACT
GTTCTTATTT GCTGCCACAC CTGAGCCAGC CTGCTCCTTC CCAGGAGTGG AGGAGGCCTG GGGGAGGGAG AGGAGTGACT
GAGCTTCCCT CCCGTGTGTT CTCCGTCCCT GCCCCAGCAA GACAACTTAG ATCTCCAGGA GAACTGCCAT CCACGTTTGG
TGCAATGGCT GAGTGCACAA GTGAGTTGTT GCCCTGGGTT TCTTTAATCT ATCAGCTAGA ACTTTGAAGG ACAATTTCTT
GCATTAATAA AGGTTAAGCC CTGAGGGGTC CCTTGATAAC AACCTGGAGA CCAGGATTTT ATGGCTCCCC TCACTGATGG
ACAAGGAGGT CTGTGCCAAA GAAGAATCAA TAAGCACATA TGAGCACTTC TGTATATCAG TATTGAGCAC TGTAGGCA -3'
(FRAG. NO:2275) (SEQ ID NO:11816)

5'- CTGCAGAAAA CAGCCTGAGC TCCACCTCGG CTTCTCCTTG CCCTGGCTGG TTGTCCTTAA CCCCTGTCTC CTTCTGGACC
AGTTTTTGTC CTTCCCTTGT GACCTGAGG GGTAACAGCC TCTTTTCCAC TTTCTTTCAG CGCCGACATG CTCAATGTCA
CCTTGCAAGG GCCCACTCTT AACGGGACCT TTGCCCAGAG CAAATGCCCC CAAGTGGAGT GGCTGGGCTG GCTCAACACC
ATCCAGCCCC CCTTCCTCTG GGTGCTGTTC GTGCTGGCCA CCCTAGAGAA CATCTTTGTC CTCAGCGTCT TCTGCCTGCA
CAAGAGCAGC TGCACGGTGG CAGAGATCTA CCTGGGGAAC CTGGCCGCAG CAGACCTGAT CCTGGCCTGC GGGCTGCCCT
TCTGGGCCAT CACCATCTCC AACAACTTCG ACTGGCTCTT TGGGGAGACG CTCTGCCGCG TGGTGAATGC CATTATCTCC
ATGAACCTGT ACAGCAGCAT CTGTTTCCTG ATGCTGGTGA GCATCGACCG CTACCTGGCC CTGGTGAAAA CCATGTCCAT
GGGCCGGATG CGCGGCGTGC GCTGGGCCAA GCTCTACAGC TTGGTGATCT GGGGGTGTAC GCTGCTCCTG AGCTCACCCA
TGCTGGTGTT CCGGACCATG AAGGAGTACA GCGATGAGGG CCACAACGTC ACCGCTTGTG TCATCAGCTA CCCATCCCTC
ATCTGGGAAG TGTTCACCAA CATGCTCCTG AATGTCGTGG GCTTCCTGCT GCCCCTGAGT GTCATCACCT TCTGCACGAT
GCAGATCATG CAGGTGCTGC GGAACAACGA GATGCAGAAG TTCAAGGAGA TCCAGACGGA GAGGAGGGCC ACGGTGCTAG
TCCTGGTTGT GCTGCTGCTA TTCATCATCT GCTGGCTGCC CTTCCAGATC AGCACCTTCC TGGATACGCT GCATCGCCTC
GGCATCCTCT CCAGCTGCCA GGACGAGCGC ATCATCGATG TAATCACACA GATCGCCTCC TTCATGGCCT ACAGCAACAG
CTGCCTCAAC CCACTGGTGT ACGTGATCGT GGGCAAGCGC TTCCGAAAGA AGTCTTGGGA GGTGTACCAG GGAGTGTGCC
AGAAAGGGGG CTGCAGGTCA GAACCCATTC AGATGGAGAA CTCCATGGGC ACACTGCGGA CCTCCATCTC CGTGGAACGC
CAGATTCACA AACTGCAGGA CTGGGCAGGG AGCAGACAGT GAGCAAACGC CAGCAGGGCT GCTGTGAATT TGTGTAAGGA
TTGAGGGACA GTTGCTTTTC AGCATGGGCC CAGGAATGCC AAGGAGACAT CTATGCACGA CCTTGGGAAA TGAGTTGATG
TCTCCGGTAA AACACCGGAG ACTAATTCCT GNCCTGCCCA ATTTTGCAGG GAGCATGGCT GTGAGGATGG GGTGAACTCA
CGCACAGCCA AGGACTCCAA AATCACAACA GCATTACTGT TCTTATTTGC TGCCACACCT GAGCCAGCCT GCTCCTTCCC
AGGAGTGGAG GAGGCCTGGG GGCAGGGAGA GGAGTGACTG AGCTTCCCTC CCGTGTGTTC TCCGTCCCTG CCCCAGCAAG
ACAACTTAGA TCTCCAGGAG AACTGCCATC CAGCTTTGGT GCAATGGCTG AGTGCACAAG TGAGTTGTTG CCCTGGGTTT
CTTTAATCTA TTCAGCTAGA ACTTTGAAGG ACAATTTCTT GCATTAATAA AGGTTAAGCC CTGAGGGGTC CCTGATAACA
ACCTGGAGAC CAGGATTTTA TGGCTCCCCT CACTGATGGA CAAGGGAGGT CTGTGCCAAA GAAGAATCCA ATAAGCACAT
ATTGAGCACT TGCTGTATAT GCAGTATTGA GCACTGTAGG CAAGAGGGAA GAAAGAGAAG GAGCCATCTC CATCTTGAAG
GAACTCAAAG ACTCAAGTGG GAACGACTGG CACTGCCACC ACCAGAAAGC TGTTCGACGA GACGGTCGAG CAGGGTGCTG
TGGGTGATAT GGACAGCAGA AGGGGGAGAC CAAGGTTCCA GCTCAACCAA TAACTATTGC ACAACCACCT GTCCCTGCCT
CAGTTCCCTC TTCTGTAACA TGAAGTCGTT GTGAGGGTTA AAGGCAGTAA CAGGTATAAA GTACTTAGAA AAGCAAAGGG
TGCTACGTAC ATGTGAGGCA TCATTACGCA GACGTAACTG GGATATGTTT ACTATAAGGA AAAGACACTG AGGTCTAGA -3'
(FRAG. NO:2275) (SEQ ID NO:11815)

5'- AAATGATAGA CCGTCAATAA TTTGTTAAAT GCTTTTTAAA ATGAATGCTT TAAGCCGGGT GCAGTGCCTC ACATCTGTAA
TCCCAGCACT TTGGAGCCGA GCGGGTGGAT TGTGTGAGGT CAGGAGTTCG AGACCAACCT GGCCAACATG GCAAAACCTC
ACTCTCTACC AAAAATACAA AAATTAGCCA GGCATGGTGG CAGGCACCTG TGATCCCAGC TACTCAGGAG GCTGAGACAG
GAGAATCGCT TGAACCCGGG AGGCAAGGTT GCAGTGAGCC AAGATTACGC CATTGTACTC CAGCCTGGGT GACAGAGAGA
GACTCCGTCT CAAAAAAAAA AAAAAAAAAA AAAAAATTAC GCTTCAAACA CATGATCTCT CACCACTGTT GAATTTTCTT
TCTATGAGCC CAGGAGGGCC TCTCAGAGAG GAAAGCTCCT AGGTCTTCCT TTCCCTCTGC AAACTCCCTG CCTTGAAGGT
TCAGAAGGAC TGTGCGTGCT CGTTGCATCC TTTGCAAGTG TCCAAACCCT GATCCCAGCT GTGCTTAGGG GTTCCTGCAA

ACCTTTTCCA GGTGTTAATT ACCTCCCACT TCATTTCCTG TTTACCAACT CAGCTTTTTG TTTTAGTGTG TTTGAATTCC CTGAACTGAC CGTTGTCTGA TCTCCACCTC CCAACTGAAT TAGGGGAGCT GGGCTTCTGG AAACCCAGGT GCCGGGTGTT GCAGAGTGGC TGAAAGCTGG GATGTGGCAG ATCCGTGGCT ACATTCATGC ACACACACAC ACCCACATAC CCACACATGC ACACACACAC ACACACCCGC ACTCACACAC TTGGACATGC ATAGACCACA GCTTTCCACA CCCTTCCTAG ACAGGGGTCA CTTGGTATCC TGGAGAGAGT GTGAAGTCCT GGAATGGAAA GAGGGGGGAT TAAGCCCCAC CTCTAGCCAT GGGACTGAGA CAAGTCACCA CCAACCCATC TGCGCCTTGT TTACCTCCTC TGTGAGGCAA GCACAGAGCC CATGCCTGCC CCCCTGGATG GGAGTGATGT GAAACTTGAA GGGCGGTCAG AGCAAGGGTC GGGAATGGAA GGCCCTTGGG AAAAAAGGCC CTTTCAACTA GGGGCACAGA GGAGGCCCTG GGCTGAGAAC TTGACAGCAC CTTGTAATTG GTAAGCCAAG CCCGAAGGGA CTGGAAATAC TCAGATGTGT CTGTCTCCCT TATTAGGTTC AAAGTCCCTC AAGACCCTGT CTCCATCACA GTGCTCCAGT CCAGACCCCT CCTCTGAGCT CCAGACCCTG CTGGACCCAA CCAGCCCTAT GGGGTCGCAT CCCCACCTGC CTGGAATTCT CCAAAGAACC TCCCCTTTAA CAGTTCCAGC CTTTAACAGT TCCAGTCTAA ACACATGACC TTTCTCCTCT AAATCAGCCC CCCATCTCTG CCTTTGCAGG AGATGGAAGC CATGACACCT GCCTCGCCCC TGTCCTCACC CCATCCATGT CCAATCAAGC ACTAGGCATG TCAGGTTTAC CCTCTAAACT CCTCTGGAAT CCAGTCTCTC AGTCTCCATC ATCCCAGGTC GAAGCTAATG GGCTAACTGG TCCTTGCTTC CACTCTACCC CCACTGCAGT CCTGACTTCC TGAGCAGCAG CCAGGGCCTA ATCGATATTC ACACCAAGCG CCAACCTGAC TGAGATATCC TCCTGCACCA TCATCCCTCC ACCCTGTTTA GTTCTGCTCA CCCTCAGTGT TCTCATCAAT AATCCACTCC CCTCACAGGC GCGTTTGGGA CCCCATGTTC TATGCTCTCA CAGGACCTTT TGCTTGATTT TTCACTGTAC TTAGGTCAGT TTGCAGTTAT TAAGTGACTG AGCAATGTCT GGCTTCTCCA GTAGACTGTC AGCTCCTAGC CATTGTATAC CTAGCACCGC TGTGTGGGAG CACGTGACAA ACGTCCAGTG AGTCAGGGAC TCAGCAGTCT CCATTTCTCC GCCCTGCTGG AGAATGCGTG TATTTGGCAA TCCCCAGCCC CTGTGCCATC TAACCATCTT TTCTTCTCTG TTCAGCCCAG GTGTGGCCTC ACTCACATCC CACTCTGAGT CCAAATGTTC TCTCCCTGGA AGATATCAAT GTTTCTGTCT GTTCGTGAGG ACTCCGTGCC CACCACGGCC TCTTTCAGGT GAGTCAAAGG GATTCCTCAG TTCACTAGTT AGGGGAGGTG GGCAGACACC CTGGAGAACT CCCTGGAAAG CTCAACTCTC ATGCCCCGGA CAACAGTTGA AGGAACCATG GTGATGTTAA GCCCAAAGAC AAAACCTCTC AGGTGTCCAA GTCCCTGTTG GAATCTTGGG AGCAGAGGGA ATGTTCTGTG GTCTAGAGGA AGAGGGGCTC AGGGAGGAGA AGGGCACATT CCTGGTTGTT ATATGTTTCT ATCTATCCCA GATGAACTTG GAAGTGAAGG GAAGAGAGTT AAACATTAAA GTAAATACCC AGTGGATCAG ACAGCAATGT GCCAGATTGC CTTGGAAACA AAATATCTCC AACACATGGC TGACATTTGG TGGGAGATCA GAACACCCTA AAGAGAGAAT TTAAGGGGAG GGGGAGGAGG ACCTGAGCCA GAGTAGAAGC AGAGGATAGG GAGATCTGTT CTTGGGGACA GCATTTGCAA GAAACAAGGC TGAGGGGTCC ACTCCAACCT CTCCACCCTG CTGCAGGTGC TGCCTATGAT GAAGATGAGC AGATGGCCAT CTCAGCTGGG GCCACAGTGC ACTGGACCTA TAGTTTCCAA TTCCGCACTC AGCAGGCATC TTTCTGATGA TCCGATGGCT TCTCAGAGCC AGGGATGGGC CAGGATCCAT CCCCTTGGCT ACTGTCTTGC TGAGAAATTT ATAAGCAGCA TCTGGTGCTA TACTTTGGTC TCTAGTGAGT TAGCTCATGA AAGATGATAG ACTCTCCAAG CCAGGGGTAT GCAGGAAATG GGTTTTCTGT AGCTACAGAA ATGGGGTTGA GGGTTGGACC AAGGGACTAC CCAGGGGAAG TCTTACCTTC AGAGGACTCT GGAAAGGAGG CTGCAAGTTT TCATGGGTCA AGAATTCAGA GCCCAGTAGA GACAGCTTAT CTCTGTTCCA AGATGTCTGG GGCCTTGGTT GGAAGATTCA AAGGCTAGGA AACCAGGAGC CACCAAAAGC GTAACTGGGG CCAGAGGATC CACTTTCAAG GTGGCAAGTT GGTTCCCCCC ATGTGGCTGC TTGAGTATCC TCACATGGCG GCTCACATCC TTCCAAGTAA GCAATGCAAA AGGCCAAGAA AGATGCTGCA AAGATGTTAT GACCTAGCCT CAGAAATCAC ACACCATCCC TGCCACCATT AGTAAGAAGT CCAGCCCACG TCCAGGAGAA GAGGAAGCAG ATTCCTCCTT TTGAAATGAA GAATATCAAG TAATTCGGGG GGCATATGAA AGCCACCACA CACCACAGGG ATCTTTTTAG AGCATACTTC TTATACCATC ACTGTAGTTC CTTAAGACTC AGGGGCAAAG CCTCACTTCC TTAGCACCCA GTGAAGACCA CGCTTACTCC CTCACTCAAC CTCTTGCTAC TTCCCACCTC TCCTGTCCAA CATCTAGTGT CACTTTCCAG AACATACCAA CAGCTTCCCC AGTTCTGTGC CTCTGCTCAG GCTGTTCCCC CTGCCTGGTC CACTTGTCCT CCTTCTTGTC CGGTCAAAAT GCTTCTTATC CTTCAAGACC CAGCTCTAGA GTCACCTCCA ACCCCTTACC CACCAGCCCC CTCTCCAAGT CTGTGTCCCA CAACCCCCCT GCTCCCTCCA GGGCACCCTC CACCCTCTGG GCCACAGTTG TCAGGAGTCA GGCAGGGCAG GGGCCGGGTG GTGTCTTCTT TGTGTTCTTG CACTCAGGGC AGAGCTCAGC ACAGAGCAGA CGCTCAAAAA ACATTTAAAG GATAGAAGCA TTGATTTGTG GGTCCCCCAG TCTGGCTCCA GGATGCCAGC CAGCTGCTCC TAGAAGCAAA CGGACTTTTC CTGGGAAATC CCAGAGGTGA TGATCAGTAA TCTCTCCCGT GACTCGTAGT TCAGCTCTTC CTCCATGAGC CTGACTATCA GTGGACCTTC CAGAAAGAGC CCCTTTTCCT TCTCTCACCC ACAGCACAGG GCACTGGGAA AATGCCCAAT GAGTCCTGCC TCTGGGTTGT GCTTTGGACT TTTCAGTGTG TCTCGCATCC ACTCTTCAAC TTGAATGTTG CAACAGCCAT GAAAAAAGAA ATGCAAAGCG ATTCAGGATG AGAGCAATAC CCTACTCCAA AGAAGGCAAC ATAGAAGCTC AGAGAGATCA AGCAATTTGC CCAAGACCAC ACAGCTAGGA GTGGAACTCA TGGCTGTCCA AGCCCCATGC CTCTGCTGAA GGTAGAGATG AATTACAGCA ACAAGTCTAG AAAGGTGCCT GCCCTATGGT CTGTGAGTCT TGCCTAAGAA TGAAAGAGGA GCCAGTGGGT TAAAGATGAG GTCACCAACA ACGGTGGTGT TGGAGTTTAC CACTGATAAT AAGGGTGCAA AATGTAAATT ACTAATGTTT ATTGAGCCTA GTGCAGTGCG TGGGGCATTT TGCACATTGT CTCTGATCCC TATGACAACC CTGAGAGGTA GTGGTTTTAA CTGCCATGTT ACAGGTGAGG TCATTGTGGT TCAAGGACGT TAAGTAACTT CCCCAGCGTG ACACGGCTTA TAAGTAAGGC AGCCAGGATG TGAACCCAGT AGGACTATCT GGCTGCAAAG TCCCCACCCC CCTCGCCATC TGTATCCTCC AATCACTTCA GTGCTTTGCT GCATAGAAGG TAACGGAAAT CACGATGCCA CAGACTGTCC AGGAAGACAG AAACTAGGCA GATGGGCTGG CCATGGTCTC CAAGCCAGAC TGGAATCTCC AGGTCTGGAA TGATATCATT TTTCTCTTTT AATAAATTAA CTCACCCACC ACACGGCTTT GAGAGGCTCA AAGTTGACCA ACTCCCTTGG GAGGGCCCCG GTTGATAAGG AAGGAACGTG AATCCTCCCA TCACGGAAGC TTCAAGGAGG TCAAGGGTCC AACACTTGAG ATTGTTAGTG CTGTTGGTGG ATACTGGCCA AGGAAATATC CCAGTGGAGC CTCGAGATGA AGAACATGAG GCCCCCGTTT AGAACCAAGG ATCAGAGGGG GCTCTGTAAG ACCCAGGGGA GTCAGGTGCA CTGGAGCGCG GGCATGCAGA AAACAGCCTG AGCTCCACCT CGGCTTCTCC TTGTCCTGGC TGGTTGTCCT TAACCCCTGT CTCCTTCTGG ACCAGTTTTT GTCCTTCCCT TGTGACCGCT GAGGGGTAAC AGCCTCTTTC CACTTTCTTT CAGCGCCGAC ATGCTCAATG TCACCTTGCA AGGGCCCACT CTTAACGGGA CCTTTGCCCA GAGCAAATGC CCCCAAGTGG AGTGGCTGGG CTGGCTCAAC ACCATCCAGC CCCCCTTCCT CTGGGTGCTG TTCGTGCTGG CCACCCTAGA GAACATCTTT GTCCTCAGCG TCTTCTGCCT GCACAAGAGC AGCTGCACGG TGGCAGAGAT CTACCTGGGG AACCTGGCCG CAGCAGACCT GATCCTGGCC TGCGGGCTGC CCTTCTGGGC CATCACCATC TCCAACAACT TCGACTGGCT CTTTGGGGAG ACGCTCTGCC GCGTGGTGAA TGCCATTATC TCCATGAACC TGTACAGCAG CATCTGTTTC CTGATGCTGG TGAGCATCGA CCGCTACCTG GCCCTGGTGA AAACCATGTC CATGGGCCGG ATGCGCGGCG TGCGCTGGGC CAAGCTCTAC AGCTTGGTGA TCTGGGGGTG TACGCTGCTC CTGAGCTCAC CCATGCTGGT GTTCCGGACC ATGAAGGAGT ACAGCGATGA GGGCCACAAC GTCACCGCTT GTGTCATCAG CTACCCATCC CTCATCTGGG AAGTGTTCAC CAACATGCTC CTGAATGTCG TGGGCTTCCT GCTGCCCCTG AGTGTCATCA CCTTCTGCAC GATGCAGATC ATGCAGGTGC TGCGGAACAA CGAGATGCAG AAGTTCAAGG AGATCCAGAC GGAGAGGAGG GCCACGGTGC TAGTCCTGGT TGTGCTGCTG CTATTCATCA TCTGCTGGCT GCCCTTCCAG ATCAGCACCT TCCTGGATAC GCTGCATCGC CTCGGCATCC TCTCCAGCTG CCAGGACGAG CGCATCATCG ATGTAATCAC ACAGATCGCC TCCTTCATGG CCTACAGCAA CAGCTGCCTC AACCCACTGG TGTACGTGAT CGTGGGCAAG CGCTTCCGAA AGAAGTCTTG GGAGGTGTAC CAGGGAGTGT GCCAGAAAGG GGGCTGCAGG TCAGAACCCA TTCAGATGGA GAACTCCATG GGCACACTGC GGACCTCCAT CTCCGTGGAA CGCCAGATTC ACAAACTGCA GGACTGGGCA GGGAGCAGAC AGTGAGCAAA CGCCAGCAGG GCTGCTGTGA ATTTGTGTAA GGATTGAGGG ACAGTTGCTT TTCAGCATGG

GCCCAGGAAT GCCAAGGAGA CATCTATGCA CGACCTTGGG AAATGAGTTG ATGTCTCCGG TAAAACACCG GAGACTAATT CCTGCCCTGC CCAATTTTGC AGGGAGCATG GCTGTGAGGA TGGGGTGAAC TCACGCACAG CCAAGGACTC CAAAATCACA ACAGCATTAC TGTTCTTATT TGCTGCCACA CCTGAGCCAG CCTGCTCCTT CCCAGGAGTG GAGGAGGCCT GGGGGCAGGG AGAGGAGTGA CTGAGCTTCC CTCCCGTGTG TTCTCCGTCC CTGCCCCAGC AAGACAACTT AGATCTCCAG GAGAACTGCC ATCCAGCTTT GGTGCAATGG CTGAGTGCAC AAGTGAGTTG TTGCCCTGGG TTTCTTTAAT CTATTCAGCT AGAACTTTGA AGGACAATTT CTTGCATTAA TAAAGGTTAA GCCCTGAGGG GTCCCTGATA ACAACCTGGA GACCAGGATT TTATGGCTCC CCTCACTGAT GGACAAGGAG GTCTGTGCCA AAGAAGAATC CAATAAGCAC ATATTGAGCA CTTGCTGTAT ATGCAGTATT GAGCACTGTA GGCAAGAGGG AAGAAAGAGA AGGAGCCATC TCCATCTTGA AGGAACTCAA AGACTCAAGT GGGAACGACT GGGCACTGCC ACCACCAGAA AGCTGTTCGA TGAGACGGTC GAGCAGGGTG CTGTGGGTGA TATGGACAGC AGAAGGGGGA GCCAGGTTCC AGCTCACCAA TACTATTGCA CACCACCTGT CCTGCCTC-3' (FRAG.NO:2275) (SEQ. D NO:2445)

5'-CAGATTCACA AACTGCAGGA CTGGGCAGGG AGCAGACAGT GAGCAAACGC CAGCAGGGCT GCTGTGAATT TGTGTAAGGA TTGAGGGACA GTTGCTTTTC AGCATGGGCC CAGGAATGCC AAGGAGACAT CTATGCACGA CCTTGGGAAA TGAGTTGATG TCTCCGGTAA AACACCGGAG ACTAATTCCT GCCCTGCCCA ATTTTGCAGG GAGCATGGCT GTGAGGATGG GGTGAACTCA CGCACAGCCA AGGACTCCAA AATCACAACA GCATTACTGT TCTTATTTGC TGCCACACCT GAGCCAGCCT GCTCCTTCCC AGGAGTGGAG GAGGCCTGGG GGGAGGGAGA GGAGTGACTG AGCTTCCCTC CCGTGTGTTC TCCGTCCCTG CCCCAGCAAG ACAACTTAGA TCTCCAGGAG AACTGCCATC CAGCTTTGGT GCAATGGCTG AGTGCACAAG TGAGTTGTTG CCCTGGGTTT CTTTAATCTA TTCAGCTAGA ACTTTGAAGG ACAATTTCTT GCATTAATAA AGGTTAAGCC CTGAGGGGTC CCTGATAACA ACCTGGAGAC CAGGATTTTA TGGCTCCCCT CACTGATGGA CAAGGAGGTC TGTGCCAAAG AAGAATCCAA TAAGCACATA TTGAGCACTT GCTGTATATG CAGTATTGAG CACTGTAGGC AAGACCCAAG AAAGAGAAGG AGCCATCTCC ATCTTGAAGG AACTCAAAGA CTCAAGTGGG AACGACTGGG CACTGCCACC ACCAGAAAGC TGTTCGACGA GACGGTCGAG CAGGGTGCTG TGGGTGATAT GGACAGCAGA AGGGGGAGAC CAAGGTTCCA GCTCAACCAA TAACTATTGC ACAACCACCT GTCCCTGCCT CAGTTCCCTT TTATGTAACA TGAAGTCGTT GTGAGGGTTA AAGGCAGTAA CAGGTATAAA GTACTTAGAA AAGCAAAGGG TGCTACGTAC ATGTGAGGCA TCATTACGCA GACGTAACTG GGATATGTTT ACTATAAGGA AAAGACACTG AGGTCTAGAA ATAGCTCCGT GGAGCAGAAT CAGTATTGGG AGCCGGTGGC GGTGTGAAGC ACCAGTGTCT GGCACACAGT AGGTGCTCAT TGGCTCCCTT CCACCTGTCA TTCCCACCAC CCTGAGGCCC CAACCGCCAC ACACACAGGA GCATTTGGAG AGAAGGCCAT GTCTTCAAAG TCTGATTTGT GATGAGGCAG AGGAAGATAT TTCTAATCGG TCTTGCCCAG AGGATCACAG TGCTGAGACC CCCCACCACC AGCCGGTACC TGGGAAGGGG GAGAGTGCAG GCCTGCTCAG GGACTGTTCC TGTCTCAGCA ACCAAGGGAT TGTTCCTGTC AATCAATGGT TTATTGGAAG GTGGCCCAGT ATGAGCCCTA GAAGAGTGTG AAAAGGAATG GCAATGGTGT TCACCATCGG CAGTGCCAGG GCAGCACTCA TTCACTTGAT AAATGAATAT TTATTAGCTG GTTGGAGAGC TAGAACCTGG AGAGCTAGAA CCTGGAGAAC TAGAACCTGG AGGGCTAGAA CCTGGAGAGG CTAGAACCAA GAAGGGCTAG AACCTGGAGG GGCTAGAACC TAGAGAAGCT AAAACCTGAG CTAGAAGCTG GAGGACTAGA ACCTGGAGGG CTGGAATCTG AAGGGCTAGA ACCTGGAGGG CTGGAATCTG GAGAGCTAGA ACCTGGAGGG CTAGAACCTG GAGGGCTAGA ACCTAGAAGG GCTAGAACCT GGAGGGCTGG AATCTGGAGA GCTAGAACCT GGAGGGCTAG AACCTGGAGG GCTAGAACCT AGAAGGGCTA GAACCTGGAG GGCTAGAACC TGGCAGGTTA GAACCTAGAA GGGCTAGAAC CTGGAGAGCC AGAACCTGGA GGGCTAGAAC CTGGAAGGGC TAGAACCTGT AGAGCTAGAA CATGGAGAGC TAGAACCCGG CAGGCTAGAA CCTGGCAAGC TAGAACCTGG AGGGAATGAA CCTGGAGGGC TAGAACCTGG AGAATGAGAA AAATTTACAT GGCAAAGAGC CCATAAATCC TGACCAATCC AACTCTGAAT TTTAAAGCAA AAGCGTGAAA AAAAAGATTC CCTCCTTACC CCCAACCCAC TCTTTTTTCC CACCACCCAC TCTCCTCTGC CTCAGTAAGT ATCTGGAGGA AGAAAACAGG TGAAAGAAGA AGTAAAAACC ATTTAGTATT AGTATTAGAA TGAAGTCAAA CTGTGCCACA CATGGTGAAT GAAAAAAAAA AAAAAGAGGC TGTGTTTTGT CACACAGGGC AGTCATTCAG CACCAGAGCA CGTGATGGTC TGAGACTCTC TTAGGAGCAG AGCTCTGCCG CAATGGCCAT GTGGGGATCC ACACCTGGTC TGAGGGGCAA CTGAGTCTGC GGGAGAAGAG CGGCCCTATG CATGGTGTAG ATGCCCTGAT AAAGAACATC TGTCCTGTGA AAGACTCAAT GAGCTGTTAT GTTGTAAACA GGAAGCATTT CACATCCAAA CGAGAAAATC ATGTAAACAT GTGTCTTTTC TGTAGAGCAT AATAAATGGA TGAGGTTTTT GCAAAAAAAA AAAAAAAAA-3' (FRAG. NO:2275) (SEQ ID NO:11813)

5'- GAGCTCTTCA ATATTTTAGT GAAAGCTATA GATGAGGCTC CATAGGGGAT AAAGCACAGA CACACCTTTT CAGAGGGCTT GTGGACTCTG GGCAGCCTGT CCATAGACCT CTGTCCCCAA CTGGCAAGTC AGGAAACTCC AGATTAAGGA GCCCCAATGT GGTTGAACAG CCAGGTGCAC AGATGAGTCA ACCACACAGC CAGGCCAGGG AGGGCCTTCA CTCAAGAGCC TACAGCCAGT TCACAGCCAA GCCAGGGCTA GCGCCAGGCC ACCCATAAAC TGATCTGAGA CTCTGTTTCC CTGTCTCCAT GATGATGGGA TCAGGCTTGA TTGCTGGTTT GTAGGCTTGT TATGAATCAA GTCACAGGGA AGAGGAGCTG ATGGGCTGGG GGGACGTCCT CTGGCCCTCC TGTCTCTTCC CCAGATCCAC TGGGCCCACT CTTATCTGTT CTCTTCTGAA GGAAGGGTTT TAAGGCTTCA AAAAAAAATG TTTTGAAAGT CCCTGCCCTT TCCAGCTCCT ACCGTCTCAG CCCTGGGAGT GTAAAGTGCT GCAGATAGTT AGTAAGTCTT TGAGCAAAAC TGAGAAAGCC AGCCTGAGCC TTGACATGGG AGAAACCTCC GCCATACATC TCCGAAGAAA CGGCCGCGTG TCTCAGGGGA GCGCAAACAC CCGTACCCAG GAAACAGGAC AGCTTCTGCC ACTGTCGCCC TTGGGAGCCG TACGTGGCAT GACAAAGAAA TCCCAGGACT CCGCCTGCCC ACCTGGCCAC CCTCTGTTTA CACCTTCCGC GTAAACGCCC ACTGTTTACA TCCAAAACTC AGACACAAAA TAACCACCTC AAGAAGATAA ATAATGATAA GAAATAAATG TTACGCGAGG CAAATTTATT CACATGGGGC TTCCCAGGCC ACTTTGTGGT CAGCCGGGAG GGACGTTTTT GCCGTCCCAC GACTCCAACG GGCAGCCGGG CCTACGCAAA CATGGAAATC TTCCAAGAGC CTCCCTGGCC CCCAGGGCTC AGAGGGTGGC AGAGCGGAGA GCGAAGGTGG CCGCAGCCTT CCCGGCCCCA CAGCCAGCCT GGCTCCAGCT GGGCAGGAGT GCAGAGCTCA GCTGGAGGCG AGGGGGAAGT GCCCAGGAGG CTGATGACAT CACTACCCAG CCCTTCAAAG ATGAGCTGTT CCCGCCGCCA CTCCAGCTCT GGCTTCTGGG CTCCGAGGAG GGGTGGGGAC GGTGGTGACG GTGGGGACAT CAGGCTGCCC CGCAGTACCA GGGAGCGACT GAAGTGCCCA TGCCGCTTGC TCCGGAGAAG GTGGGTGCCG GGCAGGGGCT GCTCCAGCCG CCTCACCTCT GCTGGGAGGA CAAACTGTCC CAGCACAGAG GGAGGGAGGG AGGGCAGGCA GCGGGGAGAA GTTTCCCTGT GGTCGTGGGG AGTTGGGAAA AGTTCCCTTC CTTCCGGAGG GAGG-3' (FRAG.NO:2275) (SEQ ID NO:11812)

5'- GCCCTTCAAA GATGAGCTGT TCCCGCCGCC ACTCCAGCTC TGGCTTCTGG GCTCCGAGGA GGGGTGGGGA CGGTGGTGAC GGTGGGGACA TCAGGCTGCC CCGCAGTACC AGGGAGCGAC TGAAGTGCCC ATGCCGCTTG CTCCGGAGAA GGTGGGTGCC GGGCAGGGGC TGCTCCAGCC GCCTCACCTC TGCTGGGAGG ACAAACTGTC CCAGCACAGA GGGAGGGAGG GAGGGCAGGC AGCGGGGAGA AGTTTCCCTG TGGTCGTGGG GAGTT -3' (FRAG. NO:2275) (SEQ ID NO:11811)

5'- AAATGATAGA CCGTCAATAA TTTGTTAAAT GCTTTTTAAA ATGAATGCTT TAAGCCGGGT GCAGTGCCTC ACATCTGTAA TCCCAGCACT TTGGAGCCGA GCGGGTGGAT TGTGTGAGGT CAGGAGTTCG AGACCAACCT GGCCAACATG GCAAAACCTC ACTCTCTACC AAAAATACAA AAATTAGCCA GGCATGGTGG CAGGCACCTG TGATCCCAGC TACTCAGGAG GCTGAGACAG GAGAATCGCT TGAACCCGGG AGGCAAGGTT GCAGTGAGCC AAGATTACGC CATTGTACTC CAGCCTGGGT GACAGAGAGA GACTCCGTCT CAAAAAAAAA AAAAAAAAAA AAAAAATTAC GCTTCAAACA CATGATCTCT CACCACTGTT GAATTTTCTT TCTATGAGCC CAGGAGGGCC TCTCAGAGAG GAAAGCTCCT AGGTCTTCCT TTCCCTCTGC AAACTCCCTG CCTTGAAGGT TCAGAAGGAC TGTGCGTGCT CGTTGCATCC TTTGCAAGTG TCCAAACCCT GATCCCAGCT GTGCTTAGGG GTTCCTGCAA ACCTTTTCCA GGTGTTAATT ACCTCCCACT TCATTTCCTG TTTACCAACT CAGCTTTTTG TTTTAGTGTG TTTGAATTCC CTGAACTGAC CGTTGTCTGA TCTCCACCTC CCAACTGAAT TAGGGGAGCT GGGCTTCTGG AAACCCAGGT GCCGGGTGTT

GCAGAGTGGC TGAAAGCTGG GATGTGGCAG ATCCGTGGCT ACATTCATGC ACACACACAC ACCCACATAC CCACACATGC
ACACACACAC ACACACCCGC ACTCACACAC TTGGACATGC ATAGACCACA GCTTTCCACA CCCTTCCTAG ACAGGGGTCA
CTTGGTATCC TGGAGAGAGT GTGAAGTCCT GGAATGGAAA GAGGGGGGAT TAAGCCCCAC CTCTAGCCAT GGGACTGAGA
CAAGTCACCA CCAACCCATC TGCGCCTTGT TTACCTCCTC TGTGAGGCAA GCACAGAGCC CATGCCTGCC CCCCTGGATG
GGAGTGATGT GAAACTTGAA GGGCGGTCAG AGCAAGGGTC GGGAATGGAA GGCCCTTGGG AAAAAAGGCC CTTTCAACTA
GGGGCACAGA GGAGGCCCTG GGCTGAGAAC TTGACAGCAC CTTGTAATTG GTAAGCCAAG CCCGAAGGGA CTGGAAATAC
TCAGATGTGT CTGTCTCCCT TATTAGGTTC AAAGTCCCTC AAGACCCTGT CTCCATCACA GTGCTCCAGT CCAGACCCCT
CCTCTGAGCT CCAGACCCTG CTGGACCCAA CCAGCCCTAT GGGGTCGCAT CCCCACCTGC CTGGAATTCT CCAAAGAACC
TCCCCTTTAA CAGTTCCAGC CTTTAACAGT TCCAGTCTAA ACACATGACC TTTCTCCTCT AAATCAGCCC CCCATCTCTG
CCTTTGCAGG AGATGGAAGC CATGACACCT GCCTCGCCCC TGTCCTCACC CCATCCATGT CCAATCAAGC ACTAGGCATG
TCAGGTTTAC CCTCTAAACT CCTCTGGAAT CCAGTCTCTC AGTCTCCATC ATCCCAGGTC GAAGCTAATG GGCTAACTGG
TCCTTGCTTC CACTCTACCC CCACTGCAGT CCTGACTTCC TGAGCAGCAG CCAGGGCCTA ATCGATATTC ACACCAAGCG
CCAACCTGAC TGAGATATCC TCCTGCACCA TCATCCCTCC ACCCTGTTTA GTTCTGCTCA CCCTCAGTGT TCTCATCAAT
AATCCACTCC CCTCACAGGC GCGTTTGGGA CCCCATGTTC TATGCTCTCA CAGGACCTTT TGCTTGATTT TTCACTGTAC
TTAGGTCAGT TTGCAGTTAT TAAGTGACTG AGCAATGTCT GGCTTCTCCA GTAGACTGTC AGCTCCTAGC CATTGTATAC
CTAGCACCGC TGTGTGGGAG CACGTGACAA ACGTCCAGTG AGTCAGGGAC TCAGCAGTCT CCATTTCTCC GCCCTGCTGG
AGAATGCGTG TATTTGGCAA TCCCCAGCCC CTGTGCCATC TAACCATCTT TTCTTCTCTG TTCAGCCCAG GTGTGGCCTC
ACTCACATCC CACTCTGAGT CCAAATGTTC TCTCCCTGGA AGATATCAAT GTTTCTGTCT GTTCGTGAGG ACTCCGTGCC
CACCACGGCC TCTTTCAGGT GAGTCAAAGG GATTCCTCAG TTCACTAGTT AGGGGAGGTG GGCAGACACC CTGGAGAACT
CCCTGGAAAG CTCAACTCTC ATGCCCCGGA CAACAGTTGA AGGAACCATG GTGATGTTAA GCCCAAAGAC AAAACCTCTC
AGGTGTCCAA GTCCCTGTTG GAATCTTGGG AGCAGAGGGA ATGTTCTGTG GTCTAGAGGA AGAGGGGCTC AGGGAGGAGA
AGGGCACATT CCTGGTTGTT ATATGTTTCT ATCTATCCCA GATGAACTTG GAAGTGAAGG GAAGAGAGTT AAACATTAAA
GTAAATACCC AGTGGATCAG ACAGCAATGT GCCAGATTGC CTTGGAAACA AAATATCTCC AACACATGGC TGACATTTGG
TGGGAGATCA GAACACCCTA AAGAGAGAAT TTAAGGGGAG GGGGAGGAGG ACCTGAGCCA GAGTAGAAGC AGAGGATAGG
GAGATCTGTT CTTGGGGACA GCATTTGCAA GAAACAAGGC TGAGGGGTCC ACTCCAACCT CTCCACCCTG CTGCAGGTGC
TGCCTATGAT GAAGATGAGC AGATGGCCAT CTCAGCTGGG GCCACAGTGC ACTGGACCTA TAGTTTCCAA TTCCGCACTC
AGCAGGCATC TTTCTGATGA TCCGATGGCT TCTCAGAGCC AGGGATGGGC CAGGATCCAT CCCCTTGGCT ACTGTCTTGC
TGAGAAATTT ATAAGCAGCA TCTGGTGCTA TACTTTGGTC TCTAGTGAGT TAGCTCATGA AAGATGATAG ACTCTCCAAG
CCAGGGGTAT GCAGGAAATG GGTTTTCTGT AGCTACAGAA ATGGGGTTGA GGGTTGGACC AAGGGACTAC CCAGGGGAAG
TCTTACCTTC AGAGGACTCT GGAAAGGAGG CTGCAAGTTT TCATGGGTCA AGAATTCAGA GCCCAGTAGA GACAGCTTAT
CTCTGTTCCA AGATGTCTGG GGCCTTGGTT GGAAGATTCA AAGGCTAGGA AACCAGGAGC CACCAAAAGC GTAACTGGGG
CCAGAGGATC CACTTTCAAG GTGGCAAGTT GGTTCCCCCC ATGTGGCTGC TTGAGTATCC TCACATGGCG GCTCACATCC
TTCCAAGTAA GCAATGCAAA AGGCCAAGAA AGATGCTGCA AAGATGTTAT GACCTAGCCT CAGAAATCAC ACACCATCCC
TGCCACCATT AGTAAGAAGT CCAGCCCACG TCCAGGAGAA GAGGAAGCAG ATTCCTCCTT TTGAAATGAA GAATATCAAG
TAATTCGGGG GGCATATGAA AGCCACCACA CACCACAGGG ATCTTTTTAG AGCATACTTC TTATACCATC ACTGTAGTTC
CTTAAGACTC AGGGGCAAAG CCTCACTTCC TTAGCACCCA GTGAAGACCA CGCTTACTCC CTCACTCAAC CTCTTGCTAC
TTCCCACCTC TCCTGTCCAA CATCTAGTGT CACTTTCCAG AACATACCAA CAGCTTCCCC AGTTCTGTGC CTCTGCTCAG
GCTGTTCCCC CTGCCTGGTC CACTTGTCCT CCTTCTTGTC CGGTCAAAAT GCTTCTTATC CTTCAAGACC CAGCTCTAGA
GTCACCTCCA ACCCCTTACC CACCAGCCCC CTCTCCAAGT CTGTGTCCCA CAACCCCCCT GCTCCCTCCA GGGCACCCTC
CACCCTCTGG GCCACAGTTG TCAGGAGTCA GGCAGGGCAG GGGCCGGGTG GTGTCTTCTT TGTGTTCTTG CACTCAGGGC
AGAGCTCAGC ACAGAGCAGA CGCTCAAAAA ACATTTAAAG GATAGAAGCA TTGATTTGTG GGTCCCCCAG TCTGGCTCCA
GGATGCCAGC CAGCTGCTCC TAGAAGCAAA CGGACTTTTC CTGGGAAATC CCAGAGGTGA TGATCAGTAA TCTCTCCCGT
GACTCGTAGT TCAGCTCTTC CTCCATGAGC CTGACTATCA GTGGACCTTC CAGAAAGAGC CCCTTTTCCT TCTCTCACCC
ACAGCACAGG GCACTGGGAA AATGCCCAAT GAGTCCTGCC TCTGGGTTGT GCTTTGGACT TTTCAGTGTG TCTCGCATCC
ACTCTTCAAC TTGAATGTTG CAACAGCCAT GAAAAAAGAA ATGCAAAGCG ATTCAGGATG AGAGCAATAC CCTACTCCAA
AGAAGGCAAC ATAGAAGCTC AGAGAGATCA AGCAATTTGC CCAAGACCAC ACAGCTAGGA GTGGAACTCA TGGCTGTCCA
AGCCCCATGC CTCTGCTGAA GGTAGAGATG AATTACAGCA ACAAGTCTAG AAAGGTGCCT GCCCTATGGT CTGTGAGTCT
TGCCTAAGAA TGAAAGAGGA GCCAGTGGGT TAAAGATGAG GTCACCAACA ACGGTGGTGT TGGAGTTTAC CACTGATAAT
AAGGGTGCAA AATGTAAATT ACTAATGTTT ATTGAGCCTA GTGCAGTGCG TGGGGCATTT TGCACATTGT CTCTGATCCC
TATGACAACC CTGAGAGGTA GTGGTTTTAA CTGCCATGTT ACAGGTGAGG TCATTGTGGT TCAAGGACGT TAAGTAACTT
CCCCAGCGTG ACACGGCTTA TAAGTAAGGC AGCCAGGATG TGAACCCAGT AGGACTATCT GGCTGCAAAG TCCCCACCCC
CCTCGCCATC TGTATCCTCC AATCACTTCA GTGCTTTGCT GCATAGAAGG TAACGGAAAT CACGATGCCA CAGACTGTCC
AGGAAGACAG AAACTAGGCA GATGGGCTGG CCATGGTCTC CAAGCCAGAC TGGAATCTCC AGGTCTGGAA TGATATCATT
TTTCTCTTTT AATAAATTAA CTCACCCACC ACACGGCTTT GAGAGGCTCA AAGTTGACCA ACTCCCTTGG GAGGGCCCCG
GTTGATAAGG AAGGAACGTG AATCCTCCCA TCACGGAAGC TTCAAGGAGG TCAAGGGTCC AACACTTGAG ATTGTTAGTG
CTGTTGGTGG ATACTGGCCA AGGAAATATC CCAGTGGAGC CTCGAGATGA AGAACATGAG GCCCCCGTTT AGAACCAAGG
ATCAGAGGGG GCTCTGTAAG ACCCAGGGGA GTCAGGTGCA CTGGAGCGCG GGCATGCAGA AAACAGCCTG AGCTCCACCT
CGGCTTCTCC TTGTCCTGGC TGGTTGTCCT TAACCCCTGT CTCCTTCTGG ACCAGTTTTT GTCCTTCCCT TGTGACCGCT
GAGGGGTAAC AGCCTCTTTC CACTTTCTTT CAGCGCCGAC ATGCTCAATG TCACCTTGCA AGGGCCCACT CTTAACGGGA
CCTTTGCCCA GAGCAAATGC CCCCAAGTGG AGTGGCTGGG CTGGCTCAAC ACCATCCAGC CCCCCTTCCT CTGGGTGCTG
TTCGTGCTGG CCACCCTAGA GAACATCTTT GTCCTCAGCG TCTTCTGCCT GCACAAGAGC AGCTGCACGG TGGCAGAGAT
CTACCTGGGG AACCTGGCCG CAGCAGACCT GATCCTGGCC TGCGGGCTGC CCTTCTGGGC CATCACCATC TCCAACAACT
TCGACTGGCT CTTTGGGGAG ACGCTCTGCC GCGTGGTGAA TGCCATTATC TCCATGAACC TGTACAGCAG CATCTGTTTC
CTGATGCTGG TGAGCATCGA CCGCTACCTG GCCCTGGTGA AAACCATGTC CATGGGCCGG ATGCGCGGCG TGCGCTGGGC
CAAGCTCTAC AGCTTGGTGA TCTGGGGGTG TACGCTGCTC CTGAGCTCAC CCATGCTGGT GTTCCGGACC ATGAAGGAGT
ACAGCGATGA GGGCCACAAC GTCACCGCTT GTGTCATCAG CTACCCATCC CTCATCTGGG AAGTGTTCAC CAACATGCTC
CTGAATGTCG TGGGCTTCCT GCTGCCCCTG AGTGTCATCA CCTTCTGCAC GATGCAGATC ATGCAGGTGC TGCGGAACAA
CGAGATGCAG AAGTTCAAGG AGATCCAGAC GGAGAGGAGG GCCACGGTGC TAGTCCTGGT TGTGCTGCTG CTATTCATCA
TCTGCTGGCT GCCCTTCCAG ATCAGCACCT TCCTGGATAC GCTGCATCGC CTCGGCATCC TCTCCAGCTG CCAGGACGAG
CGCATCATCG ATGTAATCAC ACAGATCGCC TCCTTCATGG CCTACAGCAA CAGCTGCCTC AACCCACTGG TGTACGTGAT
CGTGGGCAAG CGCTTCCGAA AGAAGTCTTG GGAGGTGTAC CAGGGAGTGT GCCAGAAAGG GGGCTGCAGG TCAGAACCCA
TTCAGATGGA GAACTCCATG GGCACACTGC GGACCTCCAT CTCCGTGGAA CGCCAGATTC ACAAACTGCA GGACTGGGCA
GGGAGCAGAC AGTGAGCAAA CGCCAGCAGG GCTGCTGTGA ATTTGTGTAA GGATTGAGGG ACAGTTGCTT TTCAGCATGG
GCCCAGGAAT GCCAAGGAGA CATCTATGCA CGACCTTGGG AAATGAGTTG ATGTCTCCGG TAAAACACCG GAGACTAATT
CCTGCCCTGC CCAATTTTGC AGGGAGCATG GCTGTGAGGA TGGGGTGAAC TCACGCACAG CCAAGGACTC CAAAATCACA

ACAGCATTAC TGTTCTTATT TGCTGCCACA CCTGAGCCAG CCTGCTCCTT CCCAGGAGTG GAGGAGGCCT GGGGGCAGGG AGAGGAGTGA CTGAGCTTCC CTCCCGTGTG TTCTCCGTCC CTGCCCCAGC AAGACAACTT AGATCTCCAG GAGAACTGCC ATCCAGCTTT GGTGCAATGG CTGAGTGCAC AAGTGAGTTG TTGCCCTGGG TTTCTTTAAT CTATTCAGCT AGAACTTTGA AGGACAATTT CTTGCATTAA TAAAGGTTAA GCCCTGAGGG GTCCCTGATA ACAACCTGGA GACCAGGATT TTATGGCTCC CCTCACTGAT GGACAAGGAG GTCTGTGCCA AAGAAGAATC CAATAAGCAC ATATTGAGCA CTTGCTGTAT ATGCAGTATT GAGCACTGTA GGCAAGAGGG AAGAAAGAGA AGGAGCCATC TCCATCTTGA AGGAACTCAA AGACTCAAGT GGGAACGACT GGGCACTGCC ACCACCAGAA AGCTGTTCGA TGAGACGGTC GAGCAGGGTG CTGTGGGTGA TATGGACAGC AGAAGGGGGA GCCAGGTTCC AGCTCACCAA TACTATTGCA CACCACCTGT CCTGCCTC -3' (FRAQ. NO: _) (SEQ ID NO 2441)

5'-CAGATTCACA AACTGCAGGA CTGGGCAGGG AGCAGACAGT GAGCAAACGC CAGCAGGGCT GCTGTGAATT TGTGTAAGGA TTGAGGGACA GTTGCTTTTC AGCATGGGCC CAGGAATGCC AAGGAGACAT CTATGCACGA CCTTGGGAAA TGAGTTGATG TCTCCGGTAA AACACCGGAG ACTAATTCCT GCCCTGCCCA ATTTTGCAGG GAGCATGGCT GTGAGGATGG GGTGAACTCA CGCACAGCCA AGGACTCCAA AATCACAACA GCATTACTGT TCTTATTTGC TGCCACACCT GAGCCAGCCT GCTCCTTCCC AGGAGTGGAG GAGGCCTGGG GGGAGGGAGA GGAGTGACTG AGCTTCCCTC CCGTGTGTTC TCCGTCCCTG CCCCAGCAAG ACAACTTAGA TCTCCAGGAG AACTGCCATC CAGCTTTGGT GCAATGGCTG AGTGCACAAG TGAGTTGTTG CCCTGGGTTT CTTTAATCTA TTCAGCTAGA ACTTTGAAGG ACAATTTCTT GCATTAATAA AGGTTAAGCC CTGAGGGGTC CCTGATAACA ACCTGGAGAC CAGGATTTTA TGGCTCCCCT CACTGATGGA CAAGGAGGTC TGTGCCAAAG AAGAATCCAA TAAGCACATA TTGAGCACTT GCTGTATATG CAGTATTGAG CACTGTAGGC AAGACCCAAG AAAGAGAAGG AGCCATCTCC ATCTTGAAGG AACTCAAAGA CTCAAGTGGG AACGACTGGG CACTGCCACC ACCAGAAAGC TGTTCGACGA GACGGTCGAG CAGGGTGCTG TGGGTGATAT GGACAGCAGA AGGGGGAGAC CAAGGTTCCA GCTCAACCAA TAACTATTGC ACAACCACCT GTCCCTGCCT CAGTTCCCTT TTATGTAACA TGAAGTCGTT GTGAGGGTTA AAGGCAGTAA CAGGTATAAA GTACTTAGAA AAGCAAAGGG TGCTACGTAC ATGTGAGGCA TCATTACGCA GACGTAACTG GGATATGTTT ACTATAAGGA AAAGACACTG AGGTCTAGAA ATAGCTCCGT GGAGCAGAAT CAGTATTGGG AGCCGGTGGC GGTGTGAAGC ACCAGTGTCT GGCACACAGT AGGTGCTCAT TGGCTCCCTT CCACCTGTCA TTCCCACCAC CCTGAGGCCC CAACCGCCAC ACACACAGGA GCATTTGGAG AGAAGGCCAT GTCTTCAAAG TCTGATTTGT GATGAGGCAG AGGAAGATAT TTCTAATCGG TCTTGCCCAG AGGATCACAG TGCTGAGACC CCCCACCACC AGCCGGTACC TGGGAAGGGG GAGAGTGCAG GCCTGCTCAG GGACTGTTCC TGTCTCAGCA ACCAAGGGAT TGTTCCTGTC AATCAATGGT TTATTGGAAG GTGGCCCAGT ATGAGCCCTA GAAGAGTGTG AAAAGGAATG GCAATGGTGT TCACCATCGG CAGTGCCAGG GCAGCACTCA TTCACTTGAT AAATGAATAT TTATTAGCTG GTTGGAGAGC TAGAACCTGG AGAGCTAGAA CCTGGAGAAC TAGAACCTGG AGGGCTAGAA CCTGGAGAGG CTAGAACCAA GAAGGGCTAG AACCTGGAGG GGCTAGAACC TAGAGAAGCT AAAACCTGAG CTAGAAGCTG GAGGACTAGA ACCTGGAGGG CTGGAATCTG AAGGGCTAGA ACCTGGAGGG CTGGAATCTG GAGAGCTAGA ACCTGGAGGG CTAGAACCTG GAGGGCTAGA ACCTAGAAGG GCTAGAACCT GGAGGGCTGG AATCTGGAGA GCTAGAACCT GGAGGGCTAG AACCTGGAGG GCTAGAACCT AGAAGGGCTA GAACCTGGAG GGCTAGAACC TGGCAGGTTA GAACCTAGAA GGGCTAGAAC CTGGAGAGCC AGAACCTGGA GGGCTAGAAC CTGGAAGGGC TAGAACCTGT AGAGCTAGAA CATGGAGAGC TAGAACCCGG CAGGCTAGAA CCTGGCAAGC TAGAACCTGG AGGGAATGAA CCTGGAGGGC TAGAACCTGG AGAATGAGAA AAATTTACAT GGCAAAGAGC CCATAAATCC TGACCAATCC AACTCTGAAT TTTAAAGCAA AAGCGTGAAA AAAAAGATTC CCTCCTTACC CCCAACCCAC TCTTTTTTCC CACCACCCAC TCTCCTCTGC CTCAGTAAGT ATCTGGAGGA AGAAAACAGG TGAAAGAAGA AGTAAAAACC ATTTAGTATT AGTATTAGAA TGAAGTCAAA CTGTGCCACA CATGGTGAAT GAAAAAAAAA AAAAAGAGGC TGTGTTTTGT CACACAGGGC AGTCATTCAG CACCAGAGCA CGTGATGGTC TGAGACTCTC TTAGGAGCAG AGCTCTGCCG CAATGGCCAT GTGGGGATCC ACACCTGGTC TGAGGGGCAA CTGAGTCTGC GGGAGAAGAG CGGCCCTATG CATGGTGTAG ATGCCCTGAT AAAGAACATC TGTCCTGTGA AAGACTCAAT GAGCTGTTAT GTTGTAAACA GGAAGCATTT CACATCCAAA CGAGAAAATC ATGTAAACAT GTGTCTTTTC TGTAGAGCAT AATAAATGGA TGAGGTTTTT GCAAAAAAAA AAAAAAAAA -3' (FRAQ. NO: _) (SEQ ID NO 2431)

5'-GGTGBCBTTGBGCBTGTCGGCGC-3' (FRAG. NO:2276) (SEQ ID NO:11658)
5'-GGTCCCGTTBBGBGTGGGCCC-3' (FRAG. NO:2277) (SEQ ID NO:11659)
5'-GCCAGCCCAGCCACTCCACTTGGGGGC-3' (FRAG. NO:2278) (SEQ ID NO:11660)
5'-GGGTGGCCAGCACGAACAGCACCCAGAGGAAGGGGGGC-3' (FRAG. NO:2279) (SEQ ID NO:11661)
5'-GGCCCAGAAGGGCAGCCCGCAGGCCAGGATCAGGTCTGCTGCGGCC-3'(FRAG.NO:2280)(SEQ ID NO:11662)
5'-GGAGATAATGGCATTCACCACGCGGC-3' (FRAG. NO:2281) (SEQ ID NO:11663)
5'-GGCCCAGCGCACGCCGCGCATCCGGCCC-3' (FRAG. NO:2282) (SEQ ID NO:11664)
5'-GGGTTCTGACCTGCAGCCCCC-3' (FRAG. NO:2283) (SEQ ID NO:11665)
5'-GTCTCCTTGGCATTCCTGGGCCC-3' (FRAG. NO:2284) (SEQ ID NO:11666)
5'-CAGTCACTCCTCTCCCTGCCCCC-3' (FRAG. NO:2285) (SEQ ID NO:11667)
5'-CTTGCTGGGGCAGGGACGG-3' (FRAG. NO:2286) (SEQ ID NO:11668)
5'-GGTGBCBTTGBGCBTGTCGGCGC-3' (FRAG. NO:2287) (SEQ ID NO:11669)
5'-GGTCCCGTTBBGBGTGGGCCC-3' (FRAG. NO:2288) (SEQ ID NO:11670)
5'-GCCAGCCCAGCCACTCCACTTGGGGGC-3' (FRAG. NO:2289) (SEQ ID NO:11671)
5'-GGGTGGCCAGCACGAACAGCACCCAGAGGAAGGGGGGC-3' (FRAG. NO:2290) (SEQ ID NO:11672)
5'-GGCCCAGAAGGGCAGCCCGCAGGCCAGGATCAGGTCTGCTGCGGCC-3'(FRAG.NO:2291)(SEQ ID NO:11673)
5'-GGAGATAATGGCATTCACCACGCGGC-3' (FRAG. NO:2292) (SEQ ID NO:11674)
5'-GGCCCAGCGCACGCCGCGCATCCGGCCC-3' (FRAG. NO:2293) (SEQ ID NO:11675)
5'-GGGTTCTGACCTGCAGCCCCC-3' (FRAG. NO:2294) (SEQ ID NO:11676)
5'-GTCTCCTTGGCATTCCTGGGCCC-3' (FRAG. NO:2295) (SEQ ID NO:11677)
5'-CAGTCACTCCTCTCCCTGCCCCC-3' (FRAG. NO:2296) (SEQ ID NO:11678)
5'-CTTGCTGGGGCAGGGACGG-3' (FRAG. NO:2297) (SEQ ID NO:11679)
5'-CCGTGTTGTCBGTGGTGCTG-3' (FRAG. NO:2298) (SEQ ID NO:11680)
5'-CCCGTTTGBGGTBTGGC-3' (FRAG. NO:2299) (SEQ ID NO:11681)
5'-GCTCCBCCBBTTCCCTTTTCTCC-3' (FRAG. NO:2300) (SEQ ID NO:11682)
5'-TTGTTTTCCGTTTCTCTTG-3' (FRAG. NO:2301) (SEQ ID NO:11683)
5'-CCGTCTGTGGTT-3' (FRAG. NO:2302) (SEQ ID NO:11684)

<u>β2 Adrenergic Receptor Kinase Nucleic Acids and Antisense Oligonucleotide Fragments</u>

5'- GCCGCCGCCG CCAAGATGGC GGACCTGGAG GCGGTGCTGG CCGACGTGAG CTACCTGATG GCCATGGAGA AGAGCAAGGC CACGCCGGCC GCGCGCGCCA GCAAGAAGAT ACTGCTGCCC GAGCCCAGCA TCCGCAGTGT CATGCAGAAG TACCTGGAGG ACCGGGGCGA GGTGACCTTT GAGAAGATCT TTTCCCAGAA GCTGGGGTAC CTGCTCTTCC GAGACTTCTG CCTGAACCAC CTGGAGGAGG CCAGGCCCTT GGTGGAATTC TATGAGGAGA TCAAGAAGTA CGAGAAGCTG GAGACGGAGG AGGAGCGTGT GGCCCGCAGC CGGGAGATCT TCGACTCATA CATCATGAAG GAGCTGCTGG CCTGCTCGCA TCCCTTCTCG AAGAGTGCCA CTGAGCATGT CCAAGGCCAC CTGGGGAAGA AGCAGGTGCC TCCGGATCTC TTCCAGCCAT ACATCGAAGA GATTTGTCAA

AACCTCCGAG GGGACGTGTT CCAGAAATTC ATTGAGAGCG ATAAGTTCAC ACGGTTTTGC CAGTGGAAGA ATGTGGAGCT
CAACATCCAC CTGACCATGA ATGACTTCAG CGTGCATCGC ATCATTGGGC GCGGGGGCTT TGGCGAGGTC TATGGGTGCC
GGAAGGCTGA CACAGGCAAG ATGTACGCCA TGAAGTGCCT GGACAAAAAG CGCATCAAGA TGAAGCAGGG GGAGACCCTG
GCCCTGAACG AGCGCATCAT GCTCTCGCTC GTCAGCACTG GGGACTGCCC ATTCATTGTC TGCATGTCAT ACGCGTTCCA
CACGCCAGAC AAGCTCAGCT TCATCCTGGA CCTCATGAAC GGTGGGGACC TGCACTACCA CCTCTCCCAG CACGGGGTCT
TCTCAGAGGC TGACATGCGC TTCTATGCGG CCGAGATCAT CCTGGGCCTG GAGCACATGC ACAACCGCTT CGTGGTCTAC
CGGGACCTGA AGCCAGCCAA CATCCTTCTG GACGAGCATG GCCACGTGCG GATCTCGGAC CTGGGCCTGG CCTGTGACTT
CTCCAAGAAG AAGCCCCATG CCAGCGTGGG CACCCACGGG TACATGGCTC CGGAGGTCCT GCAGAAGGGC GTGGCCTACG
ACAGCAGTGC CGACTGGTTC TCTCTGGGGT GCATGCTCTT CAAGTTGCTG CGGGGGCACA GCCCCTTCCG GCAGCACAAG
ACCAAAGACA AGCATGAGAT CGACCGCATG ACGCTGACGA TGGCCGTGGA GCTGCCCGAC TCCTTCTCCC CTGAACTACG
CTCCCTGCTG GAGGGGTTGC TGCAGAGGGA TGTCAACCGG AGATTGGGCT GCCTGGGCCG AGGGGCTCAG GAGGTGAAAG
AGAGCCCCTT TTTCCGCTCC CTGGACTGGC AGATGGTCTT CTTGCAGAAG TACCCTCCCC CGCTGATCCC CCCACGAGGG
GAGGTGAACG CGGCCGACGC CTTCGACATT GGCTCCTTCG ATGAGGAGGA CACAAAAGGA ATCAAGTTAC TGGACAGTGA
TCAGGAGCTC TACCGCAACT TCCCCCTCAC CATCTCGGAG CGGTGGCAGC AGGAGGTGGC AGAGACTGTC TTCGACACCA
TCAACGCTGA GACAGACCGG CTGGAGGCTC GCAAGAAAGC CAAGAACAAG CAGCTGGGCC ATGAGGAAGA CTACGCCCTG
GGCAAGGACT GCATCATGCA TGGCTACATG TCCAAGATGG GCAACCCCTT CCTGACCCAG TGGCAGCGGC GGTACTTCTA
CCTGTTCCCC AACCGCCTCG AGTGGCGGGG CGAGGGCGAG GCCCCGCAGA GCCTGCTGAC CATGGAGGAG ATCCAGTCGG
TGGAGGAGAC GCAGATCAAG GAGCGCAAGT GCCTGCTCCT CAAGATCCGC GGTGGGAAAC AGTTCATTTT GCAGTGCGAT
AGCGACCCTG AGCTGGTGCA GTGGAAGAAG GAGCTGCGCG ACGCCTACCG CGAGGCCCAG CAGCTGGTGC AGCGGGTGCC
CAAGATGAAG AACAAGCCGC GCTCGCCCGT GGTGGAGCTG AGCAAGGTGC CGCTGGTCCA GCGCGGCAGT GCCAACGGCC
TCTGACCCGC CCACCCGCCT CCAGGAAGCT ACCTGGAGGA GGTGAGTCTT AGCGGATGAG TAGGAGTTGT CCACGGAGGA
AGGTACACAG AAGGGCTTCC AGGCCCAGGA AACAGCAGAG GCACAGAAGT GAGAATGGGT GGGTGAGTTG GTGGGGAAAC
TCCAGGTGCA GAGGATGGTA GCGAAACAAA CTGGAGCATT AAGGTCCAAG TCCTCCAAGA TCTTGACTTG CAGATTAAGG
AGTTTGTTCA CCTAATCTGC TTTGGGCAGA GTGTGGTGAG TCCTAGAGAC CCCTCTAGGT CTCTCCTCTC AGTAGCCCCA
GAAGGCCTGG AGAGCTGCTT CTGGGTGCCA AGCAGGCAGT GACTCCATCA GATCTAGATT TGGGAAAAGC ATCCCTGGTC
AGGGCCTGCA TCAGGGCAGT GGCTGGCCAT GAGGACCCTG AGAAGTAGAC AGATTCACGG AGATTCTCAG GAGGCCAGAC
AGGAGACTAT GGTGACAAAT TAGATTAGAG AAGGGGAGAG AATGAAGGAG CAGTTGGGGT AAAAGAAAAC TGAGGCTGAC
ATGGGTATAT GGGTGGCGAG TGACTCACCA CCCACTGAGA GGAGAACCTC ACAAGCTCTG ACATGCTCTG GTTCCAGGTT
CTGTTGGGGC TGATCCAAGA TGGTAGCCTA GAGGTGCACA GAGATGGGGG CCTTGCTTTG CAAAAGGATG CTGGCTGCTG
GCCCACAGCA TGGTAATGAG ATTTGAGCTT TATGTGCCCA GGGCTGGGAG GAGGGTCCTG TCACTTTGAA AGCAAAGAGA
GGCTCTAGAG AGGGGCATGT TGAGATAGGA ATGCTGCCTT GAGACACCTG GCTTTCCCCA CTCTGGGTGG CTCTCAGCAG
GGTGGGTTTC CCCTGCCAGG CAGCACTGAA CCTCTGTGCG CTTCCGGCTG GGAGAGTTTT TACCGTAACT ACATGTGGAA
CCATCCTGAA GGAACATCTG GATGGGATGG GGTACAGGGA AGGGAGCTGC CAAGAGTGCT GGCCAGGGAC CTGGGTCTAT
GAGCTGGTTG GGGGGTGGGG TTGGGTGCAG GGTACTTGAT CCTGAGTGGG CCTTCTGCGG CCAGGATTGG TTCTAGAGTA
GGAGGGGTGG GATCGGGGAT GGGGGAAGCC TGTAACTGCG CTGCAGTTGT CAGGTCCCAG GTTCTGGGTG ACCTACTAAG
GATTCTGGGT CCAGTGTGGG TCCCAGGTTA GACGTCCTAG TCCTGAGTCC GTGTCCACAG TTCTGGGTGT TGAGTCTAGG
ACAGTGATCT GGAGTTGACA GTCCAATCTA GGTCTGAGTC CTGACCCCAA GTCTAGAGTT CAGGGTCATG GTAGTAGCCT
AGGGTCAGAA TCAAGGTTGG GGTCAGTAAC CAGGATGGGA TCGAGGTCAT GGTCCAAAAT CTGGATCTGG GGACCTGTTG
GGGGTCTGAG GTGAGTGTCG CAGTCTGGGT ATGGCGTTGG AGACCCAGGG CTGTGATCTG AGGTCATGGT TAGAGTCTCA
GGTGGTGGGC CAAGGTTTGA GTCTGGGGTC CTGTTTGGAG TCTGGTGTCA GGTCGTGGAC TGCGTCCAAG GTCAGGGAGT
CCGGGGTTAT AGCCAGGGTC TGAGATGAAA GTCCCAGATG GTGTTCAGAG GTCTGAATCT GTGTCTTGGT GAGCGTCCAG
GTTCCCTGTG ATCACGTTTG GTGTCAGGGC TGCGGCCCGA CTGGGGAGCC TGGGATCCAG AGATGTGACC CGAGGTTGTG
GTCAGAGAAT GGGTCTCGGG TCGTCTTCGT GCCGGGTCCC TGTCGTGTTC CAGGCCCGGG TCTCCGTCCA GCATCGAGGG
CCGAGGTCAC GGCCAGGGTC TGAGCCCGCG GTCGCAGGTC TGGTTCGGGG TCAGATTCCG CGCGGCCTCC AGGGGGCGCC
GTCGCCGCCC GGCTCGGCCC CTCGCGGGCT CGCTGGCGTT GTGCGCGGCA GGCGGGGCCG GAGGCGGCGG CGGCTCCGGG
GGCGCGGGCC GGGCGGCGGC GGCGGCGGCG CCCCGACTGC AGTCCCGGCG GGAGCGGAGC GCGAAGCGCG GGGCCGGGCC
CGGAGCCGGC GCCATGGGGC GGCGCCGCCT GTGAGCGGCG GCGAGCGGAG CCGCGGGCGC CGAGCAGGGC CAGGCGGGAG
CGTCGGCGCC CGAGGCCGAG CGAGCCGCGG CCGGGCCGGG CCGAGCGCCG AGCGAGCAGG AGCGGCGGCG GCGGCGGCGG
CGGCGGGAGG AGGCAGCGCC GCCGCCAAGA TGGCGGACCT GGAGGCGGTG CTGGCCGACG TGAGCTACCT GATGGCCATG
GAGAAGAGCA AGGCCACGCC GGCCGCGCGC GCCAGCAAGA AGATACTGCT GCCCGAGCCC AGGTGAGGAG AAGCT-3' (FRAG. NO:_) (SEQ ID NO:11799)

5'-CCAGGAAGCT ACCTGGAGGA GGTGAGTCTT AGCGGATGAG TAGGAGTTGT CCACGGAGGA AGGTACACAG AAGGGCTTCC
AGGCCCAGGA AACAGCAGAG GCACAGAAGT GAGAATGGGT GGGTGAGTTG GTGGGGAAAC TCCAGGTGCA GAGGATGGTA
GCGAAACAAA CTGGAGCATT AAGGTCCAAG TCCTCCAAGA TCTTGACTTG CAGATTAAGG AGTTTGTTCA CCTAATCTGC
TTTGGGCAGA GTGTGGTGAG TCCTAGAGAC CCCTCTAGGT CTCTCCTCTC AGTAGCCCCA GAAGGCCTGG AGAGCTGCTT
CTGGGTGCCA AGCAGGCAGT GACTCCATCA GATCTAGATT TGGGAAAAGC ATCCCTGGTC AGGGCCTGCA TCAGGGCAGT
GGCTGGCCAT GAGGACCCTG AGAAGTAGAC AGATTCACGG AGATTCTCAG GAGGCCAGAC AGGAGACTAT GGTGACAAAT
TAGATTAGAG AAGGGGAGAG AATGAAGGAG CAGTTGGGGT AAAAGAAAAC TGAGGCTGAC ATGGGTATAT GGGTGGCGAG
TGACTCACCA CCCACTGAGA GGAGAACCTC ACAAGCTCTG ACATGCTCTG GTTCCAGGTT CTGTTGGGGC TGATCCAAGA
TGGTAGCCTA GAGGTGCACA GAGATGGGGG CCTTGCTTTG CAAAAGGATG CTGGCTGCTG GCCCACAGCA TGGTAATGAG
ATTTGAGCTT TATGTGCCCA GGGCTGGGAG GAGGGTCCTG TCACTTTGAA AGCAAAGAGA GGCTCTAGAG AGGGGCATGT
TGAGATAGGA ATGCTGCCTT GAGACACCTG GCTTTCCCCA CTCTGGGTGG CTCTCAGCAG GGTGGGTTTC CCCTGCCAGG
CAGCACTGAA CCTCTGTGCG CTTCCGGCTG GGAGAGTTTT TACCGTAACT ACATGTGGAA CCATCCTGAA GGAACATCTG
GATGGGATGG GGTACAGGGA AGGGAGCTGC CAAGAGTGCT GGCCAGGGAC CTGGGTCTAT GAGCTGGTTG GGGGGTGGGG
TTGGGTGCAG GGTACTTGAT CCTGAGTGGG CCTTCTGCGG CCAGGATTGG TTCTAGAGTA GGAGGGGTGG GATCGGGGAT
GGGGGAAGCC TGTAACTGCG CTGCAGTTGT CAGGTCCCAG GTTCTGGGTG ACCTACTAAG GATTCTGGGT CCAGTGTGGG
TCCCAGGTTA GACGTCCTAG TCCTGAGTCC GTGTCCACAG TTCTGGGTGT TGAGTCTAGG ACAGTGATCT GGAGTTGACA
GTCCAATCTA GGTCTGAGTC CTGACCCCAA GTCTAGAGTT CAGGGTCATG GTAGTAGCCT AGGGTCAGAA TCAAGGTTGG
GGTCAGTAAC CAGGATGGGA TCGAGGTCAT GGTCCAAAAT CTGGATCTGG GGACCTGTTG GGGGTCTGAG GTGAGTGTCG
CAGTCTGGGT ATGGCGTTGG AGACCCAGGG CTGTGATCTG AGGTCATGGT TAGAGTCTCA GGTGGTGGGC CAAGGTTTGA
GTCTGGGGTC CTGTTTGGAG TCTGGTGTCA GGTCGTGGAC TGCGTCCAAG GTCAGGGAGT CCGGGGTTAT AGCCAGGGTC
TGAGATGAAA GTCCCAGATG GTGTTCAGAG GTCTGAATCT GTGTCTTGGT GAGCGTCCAG GTTCCCTGTG ATCACGTTTG
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TCGTCTTCGT GCCGGGTCCC TGTCGTGTTC CAGGCCCGGG TCTCCGTCCA GCATCGAGGG CCGAGGTCAC GGCCAGGGTC
TGAGCCCGCG GTCGCAGGTC TGGTTCGGGG TCAGATTCCG CGCGGCCTCC AGGGGGCGCC GTCGCCGCCC GGCTCGGCCC

CTCGCGGGCT CGCTGGCGTT GTGCGCGGCA GGCGGGGCCG GAGGCGGCGG CGGCTCCGGG GGCGCGGGCC GGGCGGCGGC GGCGGCGGCG CCCCGACTGC AGTCCCGGCG GGAGCGGAGC GCGAAGCGCG GGGCCGGGCC CGGAGCCGGC GCCATGGGGC GGCGCCGCCT GTGAGCGGCG GCGAGCGGAG CCGCGGGCGC CGAGCAGGGC CAGGCGGGAG CGTCGGCGCC CGAGGCCGAG CGAGCCGCGG CCGGGCCGGG CCGAGCGCCG AGCGAGCAGG AGCGGCGGCG GCGGCGGCGG CGGCGGGAGG AGGCAGCGCC GCCGCCAAGA TGGCGGACCT GGAGGCGGTG CTGGCCGACG TGAGCTACCT GATGGCCATG GAGAAGAGCA AGGCCACGCC GGCCGCGCGC GCCAGCAAGA AGATACTGCT GCCCGAGCCC AGGTGAGGAG AAGCT-3' (FRAG. NO:_) (SEQ ID NO:11798)

5'-GCCGCCGCCG CCAAGATGGC GGACCTGGAG GCGGTGCTGG CCGACGTGAG CTACCTGATG GCCATGGAGA AGAGCAAGGC CACGCCGGCC GCGCGCGCCA GCAAGAAGAT ACTGCTGCCC GAGCCCAGCA TCCGCAGTGT CATGCAGAAG TACCTGGAGG ACCGGGGCGA GGTGACCTTT GAGAAGATCT TTTCCCAGAA GCTGGGGTAC CTGCTCTTCC GAGACTTCTG CCTGAACCAC CTGGAGGAGG CCAGGCCCTT GGTGGAATTC TATGAGGAGA TCAAGAAGTA CGAGAAGCTG GAGACGGAGG AGGAGCGTGT GGCCCGCAGC CGGGAGATCT TCGACTCATA CATCATGAAG GAGCTGCTGG CCTGCTCGCA TCCCTTCTCG AAGAGTGCCA CTGAGCATGT CCAAGGCCAC CTGGGGAAGA AGCAGGTGCC TCCGGATCTC TTCCAGCCAT ACATCGAAGA GATTTGTCAA AACCTCCGAG GGGACGTGTT CCAGAAATTC ATTGAGAGCG ATAAGTTCAC ACGGTTTTGC CAGTGGAAGA ATGTGGAGCT CAACATCCAC CTGACCATGA ATGACTTCAG CGTGCATCGC ATCATTGGGC GCGGGGGCTT TGGCGAGGTC TATGGGTGCC GGAAGGCTGA CACAGGCAAG ATGTACGCCA TGAAGTGCCT GGACAAAAAG CGCATCAAGA TGAAGCAGGG GGAGACCCTG GCCCTGAACG AGCGCATCAT GCTCTCGCTC GTCAGCACTG GGGACTGCCC ATTCATTGTC TGCATGTCAT ACGCGTTCCA CACGCCAGAC AAGCTCAGCT TCATCCTGGA CCTCATGAAC GGTGGGGACC TGCACTACCA CCTCTCCCAG CACGGGGTCT TCTCAGAGGC TGACATGCGC TTCTATGCGG CCGAGATCAT CCTGGGCCTG GAGCACATGC ACAACCGCTT CGTGGTCTAC CGGGACCTGA AGCCAGCCAA CATCCTTCTG GACGAGCATG GCCACGTGCG GATCTCGGAC CTGGGCCTGG CCTGTGACTT CTCCAAGAAG AAGCCCCATG CCAGCGTGGG CACCCACGGG TACATGGCTC CGGAGGTCCT GCAGAAGGGC GTGGCCTACG ACAGCAGTGC CGACTGGTTC TCTCTGGGGT GCATGCTCTT CAAGTTGCTG CGGGGGCACA GCCCCTTCCG GCAGCACAAG ACCAAAGACA AGCATGAGAT CGACCGCATG ACGCTGACGA TGGCCGTGGA GCTGCCCGAC TCCTTCTCCC CTGAACTACG CTCCCTGCTG GAGGGGTTGC TGCAGAGGGA TGTCAACCGG AGATTGGGCT GCCTGGGCCG AGGGGCTCAG GAGGTGAAAG AGAGCCCCTT TTTCCGCTCC CTGGACTGGC AGATGGTCTT CTTGCAGAAG TACCCTCCCC CGCTGATCCC CCCACGAGGG GAGGTGAACG CGGCCGACGC CTTCGACATT GGCTCCTTCG ATGAGGAGGA CACAAAAGGA ATCAAGTTAC TGGACAGTGA TCAGGAGCTC TACCGCAACT TCCCCCTCAC CATCTCGGAG CGGTGGCAGC AGGAGGTGGC AGAGACTGTC TTCGACACCA TCAACGCTGA GACAGACCGG CTGGAGGCTC GCAAGAAAGC CAAGAACAAG CAGCTGGGCC ATGAGGAAGA CTACGCCCTG GGCAAGGACT GCATCATGCA TGGCTACATG TCCAAGATGG GCAACCCCTT CCTGACCCAG TGGCAGCGGC GGTACTTCTA CCTGTTCCCC AACCGCCTCG AGTGGCGGGG CGAGGGCGAG GCCCCGCAGA GCCTGCTGAC CATGGAGGAG ATCCAGTCGG TGGAGGAGAC GCAGATCAAG GAGCGCAAGT GCCTGCTCCT CAAGATCCGC GGTGGGAAAC AGTTCATTTT GCAGTGCGAT AGCGACCCTG AGCTGGTGCA GTGGAAGAAG GAGCTGCGCG ACGCCTACCG CGAGGCCCAG CAGCTGGTGC AGCGGGTGCC CAAGATGAAG AACAAGCCGC GCTCGCCCGT GGTGGAGCTG AGCAAGGTGC CGCTGGTCCA GCGCGGCAGT GCCAACGGCC TCTGACCCGC CCACCCGCCT-3' (FRAG. NO:_) (SEQ ID NO:11797)

CCR-2 CC Chemokine Receptor Nucleic Acids and Antisense Oligonucleotide Fragments

5'-CTTTGTGAAG AAGGAATTGG CAACACTGAA ACCTCCAGAA CAAAGGCTGT CACTAAGGTC CCGCTGCCTT GATGGATTAT ACACTTGACC TCAGTGTGAC AACAGTGACC GACTACTACT ACCCTGATAT CTTCTCAAGC CCCTGTGATG CGGAACTTAT TCAGACAAAT GGCAAGTTGC TCCTTGCTGT CTTTTATTGC CTCCTGTTTG TATTCAGTCT TCTGGGAAAC AGCCTGGTCA TCCTGGTCCT TGTGGTCTGC AAGAAGCTGA GGAGCATCAC AGATGTATAC CTCTTGAACC TGGCCCTGTC TGACCTGCTT TTTGTCTTCT CCTTCCCCTT TCAGACCTAC TATCTGCTGG ACCAGTGGGT GTTTGGGACT GTAATGTGCA AAGTGGTGTC TGGCTTTTAT TACATTGGCT TCTACAGCAG CATGTTTTTC ATCACCCTCA TGAGTGTGGA CAGGTACCTG GCTGTTGTCC ATGCCGTGTA TGCCCTAAAG GTGAGGACGA TCAGGATGGG CACAACGCTG TGCCTGGCAG TATGGCTAAC CGCCATTATG GCTACCATCC CATTGCTAGT GTTTTACCAA GTGGCCTCTG AAGATGGTGT TCTACAGTGT TATTCATTTT ACAATCAACA GACTTTGAAG TGGAAGATCT TCACCAACTT CAAAATGAAC ATTTTAGGCT TGTTGATCCC ATTCACCATC TTTATGTTCT GCTACATTAA AATCCTGCAC CAGCTGAAGA GGTGTCAAAA CCACAACAAG ACCAAGGCCA TCAGGTTGGT GCTCATTGTG GTCATTGCAT CTTTACTTTT CTGGGTCCCA TTCAACGTGG TTCTTTTCCT CACTTCCTTG CACAGTATGC ACATCTTGGA TGGATGTAGC ATAAGCCAAC AGCTGACTTA TGCCACCCAT GTCACAGAAA TCATTTCCTT TACTCACTGC TGTGTGAACC CTGTTATCTA TGCTTTTGTT GGGGAGAAGT TCAAGAAACA CCTCTCAGAA ATATTTCAGA AAAGTTGCAG CCAAATCTTC AACTACCTAG GAAGACAAAT GCCTAGGGAG AGCTGTGAAA AGTCATCATC CTGCCAGCAG CACTCCTCCC GTTCCTCCAG CGTAGACTAC ATTTTGTGAG GATCAATGAA GACTAAATAT AAAAAACATT TTCTTGAATG GCATGCTAGT AGCAGTGAGC AAAGGTGTGG GTGTGAAAGG TTTCCAAAAA AAGTTCAGCA TGAAGGATGC CGTGTGTGTT GTTGCCAACA CTTGGAACAC AATGACTGGA GACATAGTTG TGCATGCCTG GCACAACATC AAGCCTGTGA TTGTGTTTAT TGATGATGTT GAACAAGTGG TGGCTTTGAG GGATTCTGTA TGCCAAGTGG AAAAAAAAGA TGTCTCCGGA ATTCGACAGG TTATCA-3' (FRAG. NO:_) (SEQ ID NO:11831)

CCR-4 CC Chemokine Receptor Nucleic Acids and Antisense Oligonucleotide Fragments

5'-TTTCATCTCT CCGGGCTTAT TTGCTGGTTT CTCCGAATGC GGGCCTTGTC TGGTTCACGC TGGATCCCCA ACGCCTAGAA CAGTGCGTGG CACGCAGTTC GTCCTTCTAT AAATATCGGA CTAAATGCAT CTCTGTGATG GTAATACCCA CACGGTGTTG TGAGAATGAA TGAGTGATTC TGTGCAAGTT CCTAGTGATC TGTTACAAAA AGTACTGGTC GCTAAATTAC TCTTATAATA AAGCATACTT TTAGGATAAT AAAGCACTAT TCGCGAATTG GTTACCGCTA TTATGAAATT ACTGAGCAAT ACATATCTAC ATCTGATCAG TCTCCAGAAT TATGCCAAAT CCTACCTTCT TCTGAAAGTA TCTCCTAATT ATCTGCACCT GACCCTAGTG ATGCTGTGAA TGTGCAAGTA TAGCTACATC CTCCGAAGGA AGGATCTTTA CTCCTTTTAC CTCCTGAATG GGCTGCGTCT GCTGAAAGCG CGGGGGAATG GGCGGTTGGA AGCTTGGCCC TACTTCCAGC ATTGCCGCCT ACTGGTTGGG TTACTCCAGC AAGTCACTCC CCTTCCCTGG GCCTCAGTGT CTCTACTGTA GCATTCCCAG GTCTGGAATT CCATCCACTT TAGCAAGGAT GGACGCGCCA CAGAGAGACG CGTTCCTAGC CCGCGCTTCC CACCTGTCTT CAGGCGCATC CCGCTTCCCT CAAACTTAGG AAATGCCTCT GGGAGGTCCT GTCCGGCTCC GGACTCACTA CCGACCACCC GCAAACAGCA GGGTCCCCTG GGCTTCCCAA GCCGCGCACC TCTCCGCCCC GCCCCTGCGC CCTCCTTCCT CGCGTCTGCC CCTCTCCCCC ACCCCGCCTT CTCCCTCCCC GCCCCAGCGG CGCATGCGCC GCGCTCGGAG CGTGTTTTTA TAAAAGTCCG GCCGCGGCCA GAAACTTCAG TTTGTTGGCT GCGGCAGCAG GTAGCAAAGT GACGCCGAGG GCCTGAGTGC TCCAGTAGCC ACCGCATCTG GAGAACCAGC GGTTACCATG GAGGGGATCA GTGTAAGTCC AGTTTCAACC TGCTTTGTCA TAAATGTACA AACGTTTGAA CTTAGAGCGC AGCCCCTCTC CGAGCGGGCA GAAGCGGCCA GGACATTGGA GGTACCCGTA CTCCAAAAAA GGGTCACCGA AAGGAGTTTT CTTGACCATG CCTATATAGT GCGGGTGGGT GGGGGGGGAG CAGGATTGGA ATCTTTTTCT CTGTGAGTCG AGGAGAAACG ACTGGAAAGA GCGTTCCAGT GGCTGCATGT GTCTCCCCCT TGAGTCCCGC CGCGCGCGGC GGCTTGCACG CTGTTTGCAA ACGTAAGAAC ATTCTGTGCA CAAGTGCAGA GAAGGCGTGC GCGCTGCCTC GGGACTCAGA CCACCGGTCT CTTCCTTGGG GAAGCGGGGA TGTCTTGGAG CGAGTTACAT TGTCTGAATT TAGAGGCGGA GGGCGGCGTG CCTGGGCTGA CTTCCCAGGA GGAGATTGCG CCCGCTTTAA CTTCGGGGTT AAGCGCCTGG TGACTGTTCT TGACACTGGG TGCGTGTTTG TTAAACTCTG TGCGGCCGAC

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CGCCTCTTCC CCACGGCCGC GAGTGGGTCC TGCAGTTCGA GAGTTTGGGG TCGTGCAGAG GTCAGCGGAG TGGTTTGACC
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CGAGTCCAGT TGTGATGTTT AACCGTCGGT GGTTTCCAGA AACCTTTTGA AACCCTCTTG CTAGGGAGTT TTTGGTTTCC
TGCAGCGGCG CGCAATTCAA AGACGCTCGC GGCGGAGCCG CCCAGTCGCT CCCCAGCACC CTGTGGGACA GAGCCTGGCG
TGTCGCCCAG CGGAGCCCCT GCAGCGCTGC TTGCGGGCGG TTGGCGTGGG TGTAGTGGGC AGCCGCGGCG GCCCGGGGCT
GGACGACCCG GCCCCCCGCG TGCCCACCGC CTGGAGGCTT CCAGCTGCCC ACCTCCGGCC GGGTTAACTG GATCAGTGGC
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CGGAGGAGCG CCCGCTTGGG GGAGGAGGTG CCGTTTGTTC ATTTTCTGAC ACTCCCGCCC AATATACCCC AAGCACCGAA
GGGCCTTCGT TTTAAGACCG CATTCTCTTT ACCCACTACA AGTTGCTTGA AGCCCAGAAT GGTTTGTATT TAGGCAGGCG
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CCTCTTCCCT CCCTGGGCGA AAAACTTCTT ACAAAAAGTT AATCACTGCC CCTCCTAGCA GCACCCACCC CACCCCCCAC
GCCGCCTGGG AGTGGCCTCT TTGTGTGTAT TTTTTTTTTC CTCCTAAGGA AGGTTTTTTT TCTTCCCTCT AGTGGGCGGG
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TCAGAGGCCA AGGAAGCTGT TGGCTGAAAA GGTGGTCTAT GTTGGCGTCT GGATCCCTGC CCTCCTGCTG ACTATTCCCG
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GTGTTCCAGT TTCAGCACAT CATGGTTGGC CTTATCCTGC CTGGTATTGT CATCCTGTCC TGCTATTGCA TTATCATCTC
CAAGCTGTCA CACTCCAAGG GCCACCAGAA GCGCAAGGCC CTCAAGACCA CAGTCATCCT CATCCTGGCT TTCTTCGCCT
GTTGGCTGCC TTACTACATT GGGATCAGCA TCGACTCCTT CATCCTCCTG GAAATCATCA AGCAAGGGTG TGAGTTTGAG
AACACTGTGC ACAAGTGGAT TTCCATCACC GAGGCCCTAG CTTTCTTCCA CTGTTGTCTG AACCCCATCC TCTATGCTTT
CCTTGGAGCC AAATTTAAAA CCTCTGCCCA GCACGCACTC ACCTCTGTGA GCAGAGGGTC CAGCCTCAAG ATCCTCTCCA
AAGGAAAGCG AGGTGGACAT TCATCTGTTT CCACTGAGTC TGAGTCTTCA AGTTTTCACT CCAGCTAACA CAGATGTAAA
AGACTTTTTT TTATACGATA AATAACTTTT TTTTAAGTTA CACATTTTTC AGATATAAAA GACTGACCAA TATTGTACAG
TTTTTATTGC TTGTTGGATT TTTGTCTTGT GTTTCTTTAG TTTTTGTGAA GTTTAATTGA CTTATTTATA TAAATTTTTT
TTGTTTCATA TTGATGTGTG TCTAGGCAGG ACCTGTGGCC AAGTTCTTAG TTGCTGTATG TCTCGTGGTA GGACTGTAGA
AAAGGGAACT GAACATTCCA GAGCGTGTAG TGAATCACGT AAAGCTAGAA ATGATCCCCA GCTGTTTATG CATAGATAAT
CTCTCCATTC CCGTGGAACG TTTTTCCTGT TCTTAAGACG TGATTTTGCT GTAGAAGATG GCACTTATAA CCAAAGCCCA
AAGTGGTATA GAAATGCTGG TTTTTCAGTT TTCAGGAGTG GGTTGATTTC AGCACCTACA GTGTACAGTC TTGTATTAAG
TTGTTAATAA AAGTACATGT TAAACTTACT TAGTGTTATG TTCTGATTTC TGTTGACATT CTTTTGGCTA GTAGAAGACA
AAAGTAATAC ATTTATGGTA TGCAAAGCAC TATCCTAGGT ATTTCATTGT AATATTTTAC TTACCCCTTA TCACAACTCT
GATAGATTCT GCTTCTGTTA CTAATTACAT TTTATAGAAG AGGAAACGGA GGCACAGAAA GCCTAAGTAA CTTGGTTAAA
GGCATGTAGT AAGTATCAAA TCCTGTATTT TAAACCAGGT AACATGACTT AACGAATCTG AAGCCTTCAC CACTTTAAAT
TCAAATGGAA GTTTAGAAAT GGCCAGCCAG CACCTATTTG TATGAAAGGT CATCTTTCAG AGGATAAGCA TGTATAAAGA
AGAAAAGGTA TGCAGTCGTG TTTGGATTTT ACTCCACCAT C-3' (FRAG. NO:_) (SEQ ID NO:11832)

CD-34 Nucleic Acids and Antisense Oligonucleotide Fragments

5'-AGGATGATGG TGATGGGGAA CTAAATGGGG AAATATGGAA GGTCACAGGA AAAGTTAACA CAAGTTAGCA AAAGTTAAC
ATAACACAAA AAGGTCTTGC AGGAAAAAAA AAAGAAAAGA AAAGAAAGAA AAAGTCTCCA AGAATGGTTT GGACAGCCAA
AATGAATACT TATAGTCACG TATACCTGCT CACTCCTGAC GCTTCACTCA CACACAGCAC AGGATCTGGT GAGGCTATCA
TAAATGTGC CACATTGTGG TTAAGTTTTA CCTGATTAAC GAAATGCTCA CACTTCTAAA CTGAGGTCCT TACAGTAGAT
TCCTTTTGCA AGATTGTTAC TGGCTTACAA CTTAAAAATA AAGGAAAATC ACAAGGAAAG AAAAGTGGGG AAAAAATCGG
AGGAAACTTG CCCCTGCCCT GGCCACCGGC AAGGCTGCCA CAAAGGGGTT AAAAGTTAAG TGGAAGTGGA GCTTGAAGAA
GTGGGATGGG GCCTCTCCAG GAAAGCTGAA CGAGGCATCT GGAGCCCGAA CAAACCTCCA CCTTTTTTGG CCTCGACGGC
GGCAACCCAG CCTCCCTCCT AACGCCCTCC GCCTTTGGGA CCAACCAGGG GAGCTCAAGT TAGTAGCAGC CAAGGAGAGG
CGCTGCCTTG CCAAGACTAA AAAGGGAGGG GAGAAGAGAG GAAAAAAGCA AGAATCCCCC ACCCCTCTCC CGGGCGGAGG
GGGCGGGAAG AGCGCGTCCT GGCCAAGCCG AGTAGTGTCT TCCACTCGGT GCGTCTCTCT AGGAGCCGCG CGGGAAGGAT
GCTGGTCCGC AGGGGCGCGC GCGAGGGCCC CAGGATGCCG CGGGGCTGGA CCGCGCTTTG CTTGCTGAGT TTGCTGC
CCTTTTTTGG CCTCGACGGC GGCAACCCAG CCTCCCTCCT AACGCCCTCC GCCTTTGGGA CCAACCAGGG GAGCTCAAGT
TAGTAGCAGC CAAGGAGAGG CGCTGCCTTG CCAAGACTAA AAAGGGAGGG GAGAAGAGAG GAAAAAAGCA AGAATCCCCC
ACCCCTCTCC CGGGCGGAGG GGGCGGGAAG AGCGCGTCCT GGCCAAGCCG AGTAGTGTCT TCCACTCGGT GCGTCTCTCT
AGGAGCCGCG CGGGAAGGAT GCTGGTCCGC AGGGGCGCGC GCGAGGGCCC AGGATGCCGC GGGGCTGGAC CGCGCTTTGC
TTGCTGAGTT TGCTGCCTTC TGGGTTCATG AGTCTTGACA ACAACGGTAC TGCTACCCCA GAGTTACCTA CCCAGGGAAC
ATTTTCAAAT GTTTCTACAA ATGTATCCTA CCAAGAAACT ACAACACCTA GTACCCTTGG AAGTACCAGC CTGCACCCTG
TGTCTCAACA TGGCAATGAG GCCACAACAA ACATCACAGA AACGACAGTC AAATTCACAT CTACCTCTGT GATAACCTCA
GTTTATGGAA ACACAAACTC TTCTGTCCAG TCACAGACCT CTGTAATCAG CACAGTGTTC ACCACCCCAG CCAACGTTTC
AACTCCAGAG ACAACCTTGA AGCCTAGCCT GTCACCTGGA AATGTTTCAG ACCTTTCAAC CACTAGCACT AGCCTTGCAA
CATCTCCCAC TAAACCCTAT ACATCATCTT CTCCTATCCT AAGTGACATC AAGGCAGAAA TCAAATGTTC AGGCATCAGA
GAAGTGAAAT TGACTCAGGG CATCTGCCTG GAGCAAAATA AGACCTCCAG CTGTGCGGAG TTTAAGAAGG ACAGGGGAGA
GGGCCTGGCC CGAGTGCTGT GTGGGGAGGA GCAGGCTGAT GCTGATGCTG GGGCCCAGGT ATGCTCCCTG CTCCTTGCCC
AGTCTGAGGT GAGGCCTCAG TGTCTACTGC TGGTCTTGGC CAACAGAACA GAAATTTCCA GCAAACTCCA ACTTATGAAA
AAGCACCAAT CTGACCTGAA AAAGCTGGGG ATCCTAGATT TCACTGAGCA AGATGTTGCA AGCCACCAGA GCTATTCCCA
AAAGACCCTG ATTGCACTGG TCACCTCGGG AGCCCTGCTG GCTGTCTTGG GCATCACTGG CTATTTCCTG ATGAATCGCC
GCAGCTGGAG CCCCACAGGA GAAAGGCTGG GCGAAGACCC TTATTACACG GAAAACGGTG GAGGCCAGGG CTATAGCTCA
GGACCTGGGA CCTCCCCTGA GGCTCAGGGA AAGGCCAGTG TGAACCGAGG GGCTCAGAAA AACGGGACCG GCCAGGCCAC
CTCCAGAAAC GGCCATTCAG CAAGACAACA CGTGGTGGCT GATACCGAAT TGTGACTCGG CTAGGTGGGG CAAGGCTGGG

CAGTGTCCGA GAGAGCACCC CTCTCTGCAT CTGACCACGT GCTACCCCCA TGCTGGAGGT GACATCTCTT ACGCCCAACC CTTCCCCACT GCACACACCT CAGAGGCTGT TCTTGGGGCC CTACACCTTG AGGAGGGGGC AGGTAAACTC CTGTCCTTTA CACATTCGGC TCCCTGGAGC CAGACTCTGG TCTTCTTTGG GTAAACGTGT GACGGGGGAA AGCCAAGGTC TGGAGAAGCT CCCAGGAACA ATCGATGGCC TTGCAGCACT CACACAGGAC CCCCTTCCCC TACCCCCTCC TCTCTGCCGC AATACAGGAA CCCCCAGGGG AAAGATGAGC TTTTCTAGGC TACAATTTTC TCCCAGGAAG CTTTGATTTT TACCGTTTCT TCCCTGTATT TTCTTTCTCT ACTTTGAGGA AACCAAAGTA ACCTTTTGCA CCTGCTCTCT TGTAATGATA TAGCCAGAAA AACGTGTTGC CTTGAACCAC TTCCCTCATC TCTCCTCCAA GACACTGTGG ACTTGGTCAC CAGCTCCTCC CTTGTTCTCT AAGTTCCACT GAGCTCCATG TGCCCCCTCT ACCATTTGCA GAGTCCTGCA CAGTTTTCTG GCTGGAGCCT AGAACAGGCC TCCCAAGTTT TAGGACAAAC AGCTCAGTTC TAGTCTCTCT GGGGCCACAC AGAAACTCTT TTTGGGCTCC TTTTTCTCCC TCTGGATCAA AGTAGGCAGG ACCATGGGAC CAGGTCTTGG AGCTGAGCCT CTCACCTGTA CTCTTCCGAA AAATCCTCTT CCTCTGAGGC TGGATCCTAG CCTTATCCTC TGATCTCCAT GGCTTCCTCC TCCCTCCTGC CGACTCCTGG GTTGAGCTGT TGCCTCAGTC CCCCAACAGA TGCTTTTCTG TCTCTGCCTC CCTCACCCTG AGCCCCTTCC TTGCTCTGCA CCCCCATATG GTCATAGCCC AGATCAGCTC CTAACCCTTA TCACCAGCTG CCTCTTCTGT GGGTGACCCA GGTCCTTGTT TGCTGTTGAT TTCTTTCCAG AGGGGTTGAG CAGGGATCCT GGTTTCAATG ACGGTTGGAA ATAGAAATTT CCAGAGAAGA GAGTATTGGG TAGATATTTT TTCTGAATAC AAAGTGATGT GTTTAAATAC TGCAATTAAA GTGATACTGA AACAC-3' (FRAG.No:_) (SEQ ID NO:11835)

5'-AGGATGATGG TGATGGGGAA CTAAATGGGG AAATATGGAA GGTCACAGGA AAAGTTAACA CAAGTTAGCA AAAAGTTAAC ATAACACAAA AAGGTCTTGC AGGAAAAAAA AAAGAAAAGA AAAGAAAGAA AAAGTCTCCA AGAATGGTTT GGACAGCCAA AATGAATACT TATAGTCACG TATACCTGCT CACTCCTGAC GCTTCACTCA CACACAGCAC AGGATCTGGT GAGGCTATCA CTAAATGTGC CACATTGTGG TTAAGTTTTA CCTGATTAAC GAAATGCTCA CACTTCTAAA CTGAGGTCCT TACAGTAGAT TCCTTTTGCA AGATTGTTAC TGGCTTACAA CTTAAAAATA AAGGAAAATC ACAAGGAAAG AAAAGTGGGG AAAAAATCGG AGGAAACTTG CCCCTGCCCT GGCCACCGGC AAGGCTGCCA CAAAGGGGTT AAAAGTTAAG TGGAAGTGGA GCTTGAAGAA GTGGGATGGG GCCTCTCCAG GAAAGCTGAA CGAGGCATCT GGAGCCCGAA CAAACCTCCA CCTTTTTTGG CCTCGACGGC GGCAACCCAG CCTCCCTCCT AACGCCCTCC GCCTTTGGGA CCAACCAGGG GAGCTCAAGT TAGTAGCAGC CAAGGAGAGG CGCTGCCTTG CCAAGACTAA AAAGGGAGGG GAGAAGAGAG GAAAAAAGCA AGAATCCCCC ACCCCTCTCC CGGGCGGAGG GGGCGGGAAG AGCGCGTCCT GGCCAAGCCG AGTAGTGTCT TCCACTCGGT GCGTCTCTCT AGGAGCCGCG CGGGAAGGAT GCTGGTCCGC AGGGGCGCGC GCGCAGGGCC CAGGATGCCG CGGGGCTGGA CCGCGCTTTG CTTGCTGAGT TTGCTGC-3' (FRAG. NO:_) (SEQ ID NO:11833)

5'-CCTTTTTTGG CCTCGACGGC GGCAACCCAG CCTCCCTCCT AACGCCCTCC GCCTTTGGGA CCAACCAGGG GAGCTCAAGT TAGTAGCAGC CAAGGAGAGG CGCTGCCTTG CCAAGACTAA AAAGGGAGGG GAGAAGAGAG GAAAAAAGCA AGAATCCCCC ACCCCTCTCC CGGGCGGAGG GGGCGGGAAG AGCGCGTCCT GGCCAAGCCG AGTAGTGTCT TCCACTCGGT GCGTCTCTCT AGGAGCCGCG CGGGAAGGAT GCTGGTCCGC AGGGGCGCGC GCGAGGGCCC AGGATGCCGC GGGGCTGGAC CGCGCTTTGC TTGCTGAGTT TGCTGCCTTC TGGGTTCATG AGTCTTGACA ACAACGGTAC TGCTACCCCA GAGTTACCTA CCCAGGGAAC ATTTTCAAAT GTTTCTACAA ATGTATCCTA CCAAGAAACT ACAACACCTA GTACCCTTGG AAGTACCAGC CTGCACCCTG TGTCTCAACA TGGCAATGAG GCCACAACAA ACATCACAGA AACGACAGTC AAATTCACAT CTACCTCTGT GATAACCTCA GTTTATGGAA ACACAAACTC TTCTGTCCAG TCACAGACCT CTGTAATCAG CACAGTGTTC ACCACCCCAG CCAACGTTTC AACTCCAGAG ACAACCTTGA AGCCTAGCCT GTCACCTGGA AATGTTTCAG ACCTTTCAAC CACTAGCACT AGCCTTGCAA CATCTCCCAC TAAACCCTAT ACATCATCTT CTCCTATCCT AAGTGACATC AAGGCAGAAA TCAAATGTTC AGGCATCAGA GAAGTGAAAT TGACTCAGGG CATCTGCCTG GAGCAAAATA AGACCTCCAG CTGTGCGGAG TTTAAGAAGG ACAGGGGAGA GGGCCTGGCC CGAGTGCTGT GTGGGGAGGA GCAGGCTGAT GCTGATGCTG GGGCCCAGGT ATGCTCCCTG CTCCTTGCCC AGTCTGAGGT GAGGCCTCAG TGTCTACTGC TGGTCTTGGC CAACAGAACA GAAATTTCCA GCAAACTCCA ACTTATGAAA AAGCACCAAT CTGACCTGAA AAAGCTGGGG ATCCTAGATT TCACTGAGCA AGATGTTGCA AGCCACCAGA GCTATTCCCA AAAGACCCTG ATTGCACTGG TCACCTCGGG AGCCCTGCTG GCTGTCTTGG GCATCACTGG CTATTTCCTG ATGAATCGCC GCAGCTGGAG CCCCACAGGA GAAAGGCTGG GCGAAGACCC TTATTACACG GAAAACGGTG GAGGCCAGGG CTATAGCTCA GGACCTGGGA CCTCCCCTGA GGCTCAGGGA AAGGCCAGTG TGAACCGAGG GGCTCAGAAA AACGGGACCG GCCAGGCCAC CTCCAGAAAC GGCCATTCAG CAAGACAACA CGTGGTGGCT GATACCGAAT TGTGACTCGG CTAGGTGGGG CAAGGCTGGG CAGTGTCCGA GAGAGCACCC CTCTCTGCAT CTGACCACGT GCTACCCCCA TGCTGGAGGT GACATCTCTT ACGCCCAACC CTTCCCCACT GCACACACCT CAGAGGCTGT TCTTGGGGCC CTACACCTTG AGGAGGGGGC AGGTAAACTC CTGTCCTTTA CACATTCGGC TCCCTGGAGC CAGACTCTGG TCTTCTTTGG GTAAACGTGT GACGGGGGAA AGCCAAGGTC TGGAGAAGCT CCCAGGAACA ATCGATGGCC TTGCAGCACT CACACAGGAC CCCCTTCCCC TACCCCCTCC TCTCTGCCGC AATACAGGAA CCCCCAGGGG AAAGATGAGC TTTTCTAGGC TACAATTTTC TCCCAGGAAG CTTTGATTTT TACCGTTTCT TCCCTGTATT TTCTTTCTCT ACTTTGAGGA AACCAAAGTA ACCTTTTGCA CCTGCTCTCT TGTAATGATA TAGCCAGAAA AACGTGTTGC CTTGAACCAC TTCCCTCATC TCTCCTCCAA GACACTGTGG ACTTGGTCAC CAGCTCCTCC CTTGTTCTCT AAGTTCCACT GAGCTCCATG TGCCCCCTCT ACCATTTGCA GAGTCCTGCA CAGTTTTCTG GCTGGAGCCT AGAACAGGCC TCCCAAGTTT TAGGACAAAC AGCTCAGTTC TAGTCTCTCT GGGGCCACAC AGAAACTCTT TTTGGGCTCC TTTTTCTCCC TCTGGATCAA AGTAGGCAGG ACCATGGGAC CAGGTCTTGG AGCTGAGCCT CTCACCTGTA CTCTTCCGAA AAATCCTCTT CCTCTGAGGC TGGATCCTAG CCTTATCCTC TGATCTCCAT GGCTTCCTCC TCCCTCCTGC CGACTCCTGG GTTGAGCTGT TGCCTCAGTC CCCCAACAGA TGCTTTTCTG TCTCTGCCTC CCTCACCCTG AGCCCCTTCC TTGCTCTGCA CCCCCATATG GTCATAGCCC AGATCAGCTC CTAACCCTTA TCACCAGCTG CCTCTTCTGT GGGTGACCCA GGTCCTTGTT TGCTGTTGAT TTCTTTCCAG AGGGGTTGAG CAGGGATCCT GGTTTCAATG ACGGTTGGAA ATAGAAATTT CCAGAGAAGA GAGTATTGGG TAGATATTTT TTCTGAATAC AAAGTGATGT GTTTAAATAC TGCAATTAAA GTGATACTGA AACAC-3' (FRAG. No:_) (SEQ ID NO:11834)

<u>Eotaxin Antisense Nucleic Acids and Oligonucleotide Fragments</u>

5'-GCATTTTTTC AAGTTTTATG ATTTATTTAA CTTGTGGAAC AAAAATAAAC CAGAAACCAC CACCTCTCAC GCCAAAGCTC ACACCTTCAG CCTCCAACAT GAAGGTCTCC GCAGCACTTC TGTGGCTGCT GCTCATAGCA GCTGCCTTCA GCCCCCAGGG GCTCGCTGGG CCAGCTTCTG TCCCAACCAC CTGCTGCTTT AACCTGGCCA ATAGGAAGAT ACCCCTTCAG CGACTAGAGA GCTACAGGAG AATCACCAGT GGCAAATGTC CCCAGAAAGC TGTGATCTTC AAGACCAAAC TGGCCAAGGA TATCTGTGCC GACCCCAAGA AGAAGTGGGT GCAGGATTCC ATGAAGTATC TGGACCAAAA ATCTCCAACT CCAAAGCCAT AAATAATCAC CATTTTTGAA ACCAAACCAG AGCCTGAGTG TTGCCTAATT TGTTTTCCCT TCTTACAATG CATTCTGAGG TAACCTCATT ATCAGTCCAA AGGGCATGGG TTTTATTATA TATATATATA TTTTTTTTTT AAAAAAAAAC GTATTGCATT TAATTTATTG AGGCTTTAAA ACTTATCCTC CATGAATATC AGTTATTTTT AAACTGTAAA GCTTTGTGCA GATTCTTTAC CCCCTGGGAG CCCCAATTCG ATCCCCTGTC ACGTGTGGGC AATGTTCCCC CTCTCCTCTC TTCCTCCCTG GAATCTTGTA AAGGTCCTGG CAAAGATGAT CAGTATGAAA ATGTCATTGT TCTTGTGAAC CCAAAGTGTG ACTCATTAAA TGGAAGTAAA TGTTGTTTTA GGAATAC ATGAAGGTCT CCGCAGCACT TCTGTGGCTG CTGCTCATAG CAGCTGCCTT CAGCCCCCAG GGGCTCGCTG GGCCAGCTTC TGTCCCAACC ACCTGCTGCT TTAACCTGGC CAATAGGAAG ATACCCCTTC AGCGACTAGA GAGCTACAGG AGAATCACCA GTGGCAAATG TCCCCAGAAA GCTGTGATCT TCAAGACCAA ACTGGCCAAG GATATCTGTG CCGACCCCAA GAAGAAGTGG GTGCAGGATT CCATGAAGTA TCTGGACCAA AAATCTCCAA CTCCAAAGCC ATAA CCACATATTC

CCCTCCTTTT CCAAGGCAAG ATCCAGATGG ATTAAAAAAT GTACCAAGTC CCTCCTACTA GCTTGCCTCT CTTCTGTTCT GCTTGACTTC CTAGGATCTG GAATCTGGTC AGCAATCAGG AATCCCTTCA TCGTGACCCC CGCATGGGCA AAGGCTTCCC TGGAATCTCC CACACTGTCT GCTCCCTATA AAAGGCAGGC AGATGGGCCA GAGGAGCAGA GAGGCTGAGA CCAACCCAGA AACCACCACC TCTCACGCCA AAGCTCACAC CTTCAGCCTC CAACATGAAG GTCTCCGCAG CACTTCTGTG GCTGCTGCTC ATAGCAGCTG CCTTCAGCCC CCAGGGGCTC GCTGGGCCAG GTAAGCCCCC CAACTCCTTA CAGGAAAGGT AAGGTAACCA CCTCCAGGCT ACTAGGTCAG CAAGAATCTT TACAGACTCA CTGCAAATTC TCCATTTGAA AAATAGGGAA ACAGGTTTTG TGGGTGGACA AGAAATGCCT CAACCGTCAC ATCCAGTCAC TGGAAGAGCC AGAACTAGAA AGCTCCCGAG TCTTTTCCCC ACATTCAAGA GGGCCGCTGG GTGCATCCTT ACCCAGCTAT CCTTACAGTG TTTGGGAATG GGAATGGCT CTGTCTTACT GTGGGCATGG TGGGCATTTT TGGCAGTGGG AGAGAAGGAA AATCTGTTGA TTAGAAGCTC AGTATGTTAA TTCGACTCCA GGACAGCTTT CAGAGACAGT GGCTAAGAGA AGAACGAGGT CCCAGGGGAT CTCTTGAGGT GACTTATTTT GACACTCTTT GGGAAAGTTA TCTAGGAGAT TTGTTCCATA ACTCATTTTC CCATACTCTG GTGACAAATT TACTGAGTGT ATCGGTCCCA CTGAGCCAGT GCATAGCATG GTAACAAACA GTTCTAAATT ATCAATGACT TAACAGAATT AACTAAATTA ACAAAAGTTA CTTTCTCACT TGTACTAAAT ATCTATAATG TATGGGCTCA GGCTTCTGCA TTTTATACTC AGGATTCTAG ACTGATGGAG AAGTTGCCAT GTGGGGGAAC ATTGATGGAT ACTGTGATAA AGCAGAAGAA AGCTCTCAGG AGTCTTGCAT AGGCAATGCA CTGTGGCTCA AAAATGACAC CCATCACTTT GTCTCCTTCT TTATTGATCA AAACTAATTA ATGCCTCCAA CCAAACAAAA GTGGCCAAGA AATGCAAGTC TACCTTGTGT CTCAAAACAG AGGATGGAGA ATATTTGGTG AAAATTACCA TGACCATCAC ATGGCCACGT AGGTCTTTAT AATGACAGAG CTAGCATTTG TCACATTGAC CAAGCTTTGT CCATACACTC TACAGTAATG ATGAGTCCTC AGTGCACAGG GGAGGATGCT GAAGACACAG GACAGCATCC TCCAGACACA TAAGACTTCA GAGCAGAGGG ATTCTCCCTC CACCTCTCGC AATTCCTTGC TTTCTCCTAA CTTCCTTTAC AAAGTCATGC TTGGAAATGT CTATGTATCA TCATGTGGCT CATTTTTTTC TCTGTTCATT TTTTTTCCCC AAAATTCAGC TTCTGTCCCA ACCACCTGCT GCTTTAACCT GGCCAATAGG AAGATACCCC TTCAGCGACT AGAGAGCTAC AGGAGAATCA CCAGTGGCAA ATGTCCCCAG AAAGCTGTGA TGTAAGTAAA TAAAGTTCAC CCTCCCCTAG ACAAAAAAAT AATGTCTAGG GCACAGAGTC AAGAACTGTG GGAGTCATAG ACTCTGATAG TTTGACCTCT ATGGTCCAAT TCATTAATTT TCACAAGTGA GTGTTCACTC CCAGCTCCCT GCCTGGGAGA TTGCTGTAGT CATATCAATT TCTTCAAGTC AAGAGCAAAG ATGGTTTTAC TGGGCCTTTA AGAGCAGCAA CTAACCCAAG AGTCTCATCC TTCCTCCTCT CCGTAGCAAC CCTTTGTCCA GGGGCAGATG GTCCTTAAAT ATTTAGGGTC AAATGGGCAG AATTTTCAAA AACAATCCTT CCAATTGCAT CCTGATTCTC CCCACAGCTT CAAGACCAAA CTGGCCAAGG ATATCTGTGC CGACCCCAAG AAGAAGTGGG TGCAGGATTC CATGAAGTAT CTGGACCAAA AATCTCCAAC TCCAAAGCCA TAAATAATCA CCATTTTTGA AACCAAACCA GAGCCTGAGT GTTGCCTAAT TTGTTTTCCC TTCTTACAAT GCATTCTGAG GTAACCTCAT TATCAGTCCA AAGGGCATGG GTTTTATTAT ATATATATAT ATATATTTTT TTTTAAAAAA AAACGTATTG CATTTAATTT ATTGAGGCTT TAAAACTTAT CCTCCATGAA TATCAGTTAT TTTTAAACTG TAAAGCTTTG TGCAGATTCT TTACCCCCTG GGAGCCCCAA TTCGATCCCC TGTCACGTGT GGGCAATGTT CCCCCTCTCC TCTCTTCCTC CCTGGAATCT TGTAAAGGTC CTGGCAAAGA TGATCAGTAT GAAAATGTCA TTGTTCTTGT GAACCCAAAG TGTGACTCAT TAAATGGAAG TAATGTTGTT TTAGGAATAC ATAAAGTATG TGCATATTTT ATTATAGTCA CTAGTTGTAA TTTTTTTGTG GGAAATCCAC ACTGAGCTGA GGGGG-3' (FRAG.NO:_) (SEQ ID NO:11863)

5'-GCATTTTTTC AAGTTTTATG ATTTATTTAA CTTGTGGAAC AAAAATAAAC CAGAAACCAC CACCTCTCAC GCCAAAGCTC ACACCTTCAG CCTCCAACAT GAAGGTCTCC GCAGCACTTC TGTGGCTGCT GCTCATAGCA GCTGCCTTCA GCCCCCAGGG GCTCGCTGGG CCAGCTTCTG TCCCAACCAC CTGCTGCTTT AACCTGGCCA ATAGGAAGAT ACCCCTTCAG CGACTAGAGA GCTACAGGAG AATCACCAGT GGCAAATGTC CCCAGAAAGC TGTGATCTTC AAGACCAAAC TGGCCAAGGA TATCTGTGCC GACCCCAAGA AGAAGTGGGT GCAGGATTCC ATGAAGTATC TGGACCAAAA ATCTCCAACT CCAAAGCCAT AAATAATCAC CATTTTTGAA ACCAAACCAG AGCCTGAGTG TTGCCTAATT TGTTTTCCCT TCTTACAATG CATTCTGAGG TAACCTCATT ATCAGTCCAA AGGGCATGGG TTTTATTATA TATATATATA TTTTTTTTTT AAAAAAAAAC GTATTGCATT TAATTTATTG AGGCTTTAAA ACTTATCCTC CATGAATATC AGTTATTTTT AAACTGTAAA GCTTTGTGCA GATTCTTTAC CCCCTGGGAG CCCCAATTCG ATCCCCTGTC ACGTGTGGGC AATGTTCCCC CTCTCCTCTC TTCCTCCCTG GAATCTTGTA AAGGTCCTGG CAAAGATGAT CAGTATGAAA ATGTCATTGT TCTTGTGAAC CCAAAGTGTG ACTCATTAAA TGGAAGTAAA TGTTGTTTTA GGAATAC-3' (FRAG.NO:_) (SEQ ID NO:11860)

5'-ATGAAGGTCT CCGCAGCACT TCTGTGGCTG CTGCTCATAG CAGCTGCCTT CAGCCCCCAG GGGCTCGCTG GGCCAGCTTC TGTCCCAACC ACCTGCTGCT TTAACCTGGC CAATAGGAAG ATACCCCTTC AGCGACTAGA GAGCTACAGG AGAATCACCA GTGGCAAATG TCCCCAGAAA GCTGTGATCT TCAAGACCAA ACTGGCCAAG GATATCTGTG CCGACCCCAA GAAGAAGTGG GTGCAGGATT CCATGAAGTA TCTGGACCAA AAATCTCCAA CTCCAAAGCC ATAA-3' (FRAG. NO:_) (SEQ ID NO:11861)

5'-CCACATATTC CCCTCCTTTT CCAAGGCAAG ATCCAGATGG ATTAAAAAAT GTACCAAGTC CCTCCTACTA GCTTGCCTCT CTTCTGTTCT GCTTGACTTC CTAGGATCTG GAATCTGGTC AGCAATCAGG AATCCCTTCA TCGTGACCCC CGCATGGGCA AAGGCTTCCC TGGAATCTCC CACACTGTCT GCTCCCTATA AAAGGCAGGC AGATGGGCCA GAGGAGCAGA GAGGCTGAGA CCAACCCAGA AACCACCACC TCTCACGCCA AAGCTCACAC CTTCAGCCTC CAACATGAAG GTCTCCGCAG CACTTCTGTG GCTGCTGCTC ATAGCAGCTG CCTTCAGCCC CCAGGGGCTC GCTGGGCCAG GTAAGCCCCC CAACTCCTTA CAGGAAAGGT AAGGTAACCA CCTCCAGGCT ACTAGGTCAG CAAGAATCTT TACAGACTCA CTGCAAATTC TCCATTTGAA AAATAGGGAA ACAGGTTTTG TGGGTGGACA AGAAATGCCT CAACCGTCAC ATCCAGTCAC TGGAAGAGCC AGAACTAGAA AGCTCCCGAG TCTTTTCCCC ACATTCAAGA GGGCCGCTGG GTGCATCCTT ACCCAGCTAT CCTTACAGTG TTTGGGAATG GGAATGGCT CTGTCTTACT GTGGGCATGG TGGGCATTTT TGGCAGTGGG AGAGAAGGAA AATCTGTTGA TTAGAAGCTC AGTATGTTAA TTCGACTCCA GGACAGCTTT CAGAGACAGT GGCTAAGAGA AGAACGAGGT CCCAGGGGAT CTCTTGAGGT GACTTATTTT GACACTCTTT GGGAAAGTTA TCTAGGAGAT TTGTTCCATA ACTCATTTTC CCATACTCTG GTGACAAATT TACTGAGTGT ATCGGTCCCA CTGAGCCAGT GCATAGCATG GTAACAAACA GTTCTAAATT ATCAATGACT TAACAGAATT AACTAAATTA ACAAAAGTTA CTTTCTCACT TGTACTAAAT ATCTATAATG TATGGGCTCA GGCTTCTGCA TTTTATACTC AGGATTCTAG ACTGATGGAG AAGTTGCCAT GTGGGGGAAC ATTGATGGAT ACTGTGATAA AGCAGAAGAA AGCTCTCAGG AGTCTTGCAT AGGCAATGCA CTGTGGCTCA AAAATGACAC CCATCACTTT GTCTCCTTCT TTATTGATCA AAACTAATTA ATGCCTCCAA CCAAACAAAA GTGGCCAAGA AATGCAAGTC TACCTTGTGT CTCAAAACAG AGGATGGAGA ATATTTGGTG AAAATTACCA TGACCATCAC ATGGCCACGT AGGTCTTTAT AATGACAGAG CTAGCATTTG TCACATTGAC CAAGCTTTGT CCATACACTC TACAGTAATG ATGAGTCCTC AGTGCACAGG GGAGGATGCT GAAGACACAG GACAGCATCC TCCAGACACA TAAGACTTCA GAGCAGAGGG ATTCTCCCTC CACCTCTCGC AATTCCTTGC TTTCTCCTAA CTTCCTTTAC AAAGTCATGC TTGGAAATGT CTATGTATCA TCATGTGGCT CATTTTTTTC TCTGTTCATT TTTTTTCCCC AAAATTCAGC TTCTGTCCCA ACCACCTGCT GCTTTAACCT GGCCAATAGG AAGATACCCC TTCAGCGACT AGAGAGCTAC AGGAGAATCA CCAGTGGCAA ATGTCCCCAG AAAGCTGTGA TGTAAGTAAA TAAAGTTCAC CCTCCCCTAG ACAAAAAAAT AATGTCTAGG GCACAGAGTC AAGAACTGTG GGAGTCATAG ACTCTGATAG TTTGACCTCT ATGGTCCAAT TCATTAATTT TCACAAGTGA GTGTTCACTC CCAGCTCCCT GCCTGGGAGA TTGCTGTAGT CATATCAATT TCTTCAAGTC AAGAGCAAAG ATGGTTTTAC TGGGCCTTTA AGAGCAGCAA CTAACCCAAG AGTCTCATCC TTCCTCCTCT CCGTAGCAAC CCTTTGTCCA GGGGCAGATG GTCCTTAAAT ATTTAGGGTC AAATGGGCAG AATTTTCAAA AACAATCCTT CCAATTGCAT CCTGATTCTC CCCACAGCTT CAAGACCAAA CTGGCCAAGG

ATATCTGTGC CGACCCCAAG AAGAAGTGGG TGCAGGATTC CATGAAGTAT CTGGACCAAA AATCTCCAAC TCCAAAGCCA
TAAATAATCA CCATTTTTGA AACCAAACCA GAGCCTGAGT GTTGCCTAAT TTGTTTTCCC TTCTTACAAT GCATTCTGAG
GTAACCTCAT TATCAGTCCA AAGGGCATGG GTTTTATTAT ATATATATAT ATATATTTTT TTTTAAAAAA AAACGTATTG
CATTTAATTT ATTGAGGCTT TAAAACTTAT CCTCCATGAA TATCAGTTAT TTTTAAACTG TAAAGCTTTG TGCAGATTCT
TTACCCCCTG GGAGCCCCAA TTCGATCCCC TGTCACGTGT GGGCAATGTT CCCCCTCTCC TCTCTTCCTC CCTGGAATCT
TGTAAAGGTC CTGGCAAAGA TGATCAGTAT GAAAATGTCA TTGTTCTTGT GAACCCAAAG TGTGACTCAT TAAATGGAAG
TAATGTTGTT TTAGGAATAC ATAAAGTATG TGCATATTTT ATTATAGTCA CTAGTTGTAA TTTTTTTGTG GGAAATCCAC
ACTGAGCTGA GGGGG-3' (FRAG.NO:_) (SEQ ID NO:11862)

FK-506 Binding Protein Nucleic Acids and Oligonucleotide Fragments

5'- GCCAGGTCGC TGTTGGTCCA CGCCGCCCGT CGCGCCGCCC GCCCGCTCAG CGTCCGCCGC CGCCATGGGA GGCCGGAGCC
GAGCCGGGGT CGGGCAGCAG CAGGGACCCC CCAGAGGCGG GGCCTGTGGG ACCGCTATGG GCGTGGAGAT CGAGACCATC
TCCCCCGGAG ACGGAAGGAC ATTCCCCAAG AAGGGCCAAA CGTGTGTGGT GCACTACACA GGAATGCTCC AAAATGGGAA
GAAGTTTGAT TCATCCAGAG ACAGAAACAA ACCTTTCAAG TTCAGAATTG GCAAACAGGA AGTCATCAAA GGTTTTGAAG
AGGGTGCAGC CCAGATGAGC TTGGGGCAGA GGGCGAAGCT GACCTGCACC CCTGATGTGG CATATGGAGC CACGGGCCAC
CCCGGTGTCA TCCCTCCCAA TGCCACCCTC ATCTTTGACG TGGAGCTGCT CAACTTAGAG TGAAGGCAGG AAGGAACTCA
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TGTTCTGTCA CTCAGCTTTG CTTCCGACAC CTCTGTTTCC TCTTCCCCTT TCTCCTCGTA TGTGTGTTTA CCTAAACTAT
ATGCCATAAA CCTCAAGTTA TTCA-3' (FRAG.NO:_) (SEQ ID NO:11868)

5'- GCCAGGTCGC TGTTGGTCCA CGCCGCCCGT CGCGCCGCCC GCCCGCTCAG CGTCCGCCGC CGCCATGGGA-3' (FRAG. No:_)(SEQ ID NO:11864)

5'-GGCCGGAGCC GAGCCGGGGT CGGGCAGCAG CAGGGACCCC CCAGAGGCGG GGCCTGTGGG CCGCTATGG GCGTGGAGAT
CGAGACCATC TCCCCCGGAG ACGGAAGGAC ATTCCCCAAG AAGGGCCAAA CGTGTGTGGT GCACTACACA GGAATGCTCC
AAAATGGGAA GAAGTTTGAT TCATCCAGAG ACAGAAACAA ACCTTTCAAG TTCAGAATTG GCAAACAGGA AGTCATCAAA
GGTTTTGAAG AGGGTGCAGC CCAGATGAGC TTGGGGCAGA GGGCGAAGCT GACCTGCACC CCTGATGTGG CATATGGAGC
CACGGGCCAC CCCGGTGTCA TCCCTCCCAA TGCCACCCTC ATCTTTGACG TGGAGCTGCT CAACTTAGAG TGAAGGCAGG
AAGGAACTCA AGGTGGCTGG AGATGGCTGC TGCTCACCCT CCTAGCCTGC TCTGCCACTG GGACGGCTCC TGCTTTTGGG
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AGTGTTCATG CGAATTCTTG CTTGAGGAAA CTTCGGTTGC AGATTGAAGC ATTTCAGGTT GTGCATTTTG TGTGATGCAT
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CACAAGGTGC TCAGACATGA AATGTACATG GCGTACCGTA CACAGAGGGA CTTGAGCCAG TTACCTTTGC TGTCACTTTC
TCTCTTATAA ATTCTGTTAG CTGCTCACTT AAACAATGTC CTCTTTGAGA AAATGTAAAA TAAAGGCTCT GTGCTTGACA-3'(FRAG. NO:_) (SEQ ID NO:12487)

5'-GAATTCGGGC CGCCGCCAGG TCGCTGTTGG TCCACGCCGC CCGTCGCGCC GCCCGCCCGC TCAGCGTCCG CCGCCGCCAT
GGGAGTGCAG GTGGAAACCA TCTCCCCAGG AGACGGGCGC ACCTTCCCCA AGCGCGGCCA GACCTGCGTG GTGCACTACA
CCGGGATGCT TGAAGATGGA AAGAAATTTG ATTCCTCCCG GGACAGAAAC AAGCCCTTTA AGTTTATGCT AGGCAAGCAG
GAGGTGATCC GAGGCTGGGA AGAAGGGGTT GCCCAGATGA GTGTGGGTCA GAGAGCCAAA CTGACTATAT CTCCAGATTA
TGCCTATGGT GCCACTGGGC ACCCAGGCAT CATCCCACCA CATGCCACTC TCGTCTTCGA TGTGGAGCTT CTAAAACTGG
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CTCAAGTTAT TCATTTTATT TTGTTTTCAT TTTGGGGTGA AGATTCAGTT TCAGTCTTTT GGATATAGGT TTCCAATTAA
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CAGATTTGAG GCGCTGTTGA GGACTGAATT ACTCTCCAAG TTGAGAGATG TCTTTGGGTT AAATTAAAAG CCCTACCTAA
AACTGAGGTG GGGATGGGGA GAGCCTTTGC CTCCACCATT CCCACCCACC CTCCCCTTAA ACCCTCTGCC TTTGAAAGTA

GATCATGTTC ACTGCAATGC TGGACACTAC AGGTATCTGT CCCTGGGCCA GCAGGGACCT CTGAAGCCTT CTTTGTGGCC
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TCCTAAATCT TAAGAACTTT AATTGACAGT TTCAATTGAA GGTGCTGTTT GTAGACTTAA CACCCAGTGA AAGCCCAGCC
ATCATGACAA ATCCTTGAAT GTTCTCTTAA GAAAATGATG CTGGTCATCG CAGCTTCAGC ATCTCCTGTT TTTTGATGCT
TGGCTCCCTC TGCTGATCTC AGTTTCCTGG CTTTTCCTCC CTCAGCCCCT TCTCACCCCT TTGCTGTCCT GTGTAGTGAT
TTGGTGAGAA ATCGTTGCTG CACCCTTCCC CCAGCACCAT TTATGAGTCT CAAGTTTTAT TATTGCAATA AAAGTGCTTT
ATGCCCGAAT TC-3' (FRAG.NO:_) (SEQ ID NO:11866)

5' GCCGCCGCCA TGGGAGTGCA GGTGGAAACC ATCTCCCCAG GAGACGGGCG CACCTTCCCC AAGCGCGGCC AGACCTGCGT
GGTGCACTAC ACCGGGATGC TTGAAGATGG AAAGAAATTT GATTCCTCCC GGGACAGAAA CAAGCCCTTT AAGTTTATGC
TAGGCAAGCA GGAGGTGATC CGAGGCTGGG AAGAAGGGGT TGCCCAGATG AGTGTGGGTC AGAGAGCCAA ACTGACTATA
TCTCCAGATT ATGCCTATGG TGCCACTGGG CACCCAGGCA TCATCCCACC ACATGCCACT CTCGTCTTCG ATGTGGAGCT
TCTAAAACTG GAATGACAGG AATGGCCTCC TCCCTTAGCT CCCTGTTCTT GGATCTGCCR TGGAGGGATC TGGTGCCTCC
AGACATGTGC ACATGARTCC ATATGGAGCT TTTCCTGATG TTCCACTCCA CTTTGTATAG ACATCTGCCC TGACTGAATG
TGTTCTGTCA CTCAGCTTTG CTTCCGACAC CTCTGTTTCC TCTTCCCCTT TCTCCTCGTA TGTGTGTTTA CCTAAACTAT
ATGCCATAAA CCTCAAGTTA TTCA-3' (FRAG. NO:_) (SEQ ID NO:11867)

wherein B is adenosine, or, more preferably, replaces adenosine and is an "equivame\\lent" or a "universal" base, and adenosine A2a receptor agonist or only minimally antagonist, an adenosine A2b receptor antagonist, an adenosine A3 receptor antagonist, or an adenosine A1 receptor antagonist. Similarly, adenosine (A) may always be replaced by an "alternative", "equivalent" and/or "universal" base having a small fraction, preferably less than 0.3 of the activity of adenosine at the adenosine receptor(s), as described above.

<u>More sequences of examples below</u>

gtttcgctcttgttgccc (SEQ ID NO:11031)
gccgcccgcctg(SEQ ID NO:11051)
gcccgctccccggc (SEQ ID NO:11052)
cbccgbggbgccc (SEQ ID NO:11053)
ggcgccgtgccgcgtcttggtggcggcgggttcgcgcccgcgcggggcccctccggtccgttcgcgcccgcgcggggcccctccggtcccgggtcgg
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ccbgctgggcccc (SEQ ID NO:11054)
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gtgctgttgttgggctttcttctgttcccbcbgbgcbgtgctgttgttgggcbtcttgccttcccbgggccctttttctggtggggtggtgctgttgt
tgggct ttcttctgttccc(SEQ ID NO:11059)
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Table : Exemplary Genes and oligos

HUMAN GENES	SEQ ID NOS. Nucleic acid (amino acid)	SEQ ID NOS. of oligos (No. of Oligonucleotide Fragments)	GENEBANK ACCESSION NOS. For the Genes
H2A histone family, member N	3285	3286-3364 (79)	AI095013
tubulin, beta polypeptide	3365	3366-3405 (40)	AI672565
ELL gene (11-19 lysine-rich leukemia gene)	3406	3407-3509 (103)	AI652901
7-dehydrocholesterol reductase	3510	3511-3592 (82)	AI652764
karyopherin alpha 2 (RAG cohort 1, importin alpha 1)	3593	3594-3680 (87)	AA489087
ADP-ribosylation factor-like 7	3681	3682-3709 (28)	AA281534
EST	3710	3711-3740 (30)	AI038433
EST	3741	3742-3808 (67)	AI122689
EST	3809	3810-3862 (53)	AI092623
ESTs	3863	3864-3936 (73)	AI095492
ESTs	3937	3938-3990 (53)	AI138216
ESTs	3991	3992-4059 (68)	AI128305
ESTs	4060	4061-4123 (63)	AI125228
ESTs	4124	4125-4181 (57)	AI041482
ESTs	4182	4183-4258 (76)	AI051839
Homo sapiens mRNA; cDNA DKFZp434A1716 (from clone DKFZp434A1716)	4259	4260-4328 (69)	AI092429
ESTs	4329	4330-4362 (33)	AI096522
ESTs	4363	4364-4421 (58)	AI122807
ESTs	4422	4423-4483 (61)	AI041212
EST	4484	4485-4544 (60)	AI125651
enolase 1, (alpha)	4545	4546-4629 (84)	AI001174
EST	4630	4631-4683 (53)	AI024215
EST	4684	4685-4729 (45)	AI034360
Homo sapiens mRNA; cDNA DKFZp564H0764 (from clone DKFZp564H0764)	4730	4731-4788 (58)	AA465687
Homo sapiens mRNA for KIAA1363 protein, partial cds	4789	4790-4853 (64)	AI085559
potassium voltage-gated channel, shaker-related subfamily, beta member 2	4854	4855-4920 (66)	AI654215
ER-associated DNAJ; ER-associated Hsp40 co-chaperone; hDj9; ERj3	4921	4922-4948 (27)	AA505075
ESTs, Weakly similar to p38 protein [H.sapiens]	4949	4950-5008 (59)	AA906703
CGI-142	5009	5010-5084 (75)	AI369870

ESTs	5085	5086-5138 (53)	AA463249
Homo sapiens clone 25058 mRNA sequence	5139	5140-5165 (26)	R38894
ESTs	5166	5167-5203 (37)	R49144
squamous cell carcinoma antigen 1	5204	5205-5290 (86)	AA398883
ESTs	5291	5292-5349 (58)	AA425700
myosin X	9 (10)	1628-2922 (1295)	NM_012334, AA187977
ESTs	5350	5351-5395 (45)	AA459692
epithelial protein lost in neoplasm beta	5396	5397-5453 (57)	AA487557
CD44 antigen (homing function and Indian blood group system)	5454	5455-5509 (55)	T69168
coagulation factor III (thromboplastin, tissue factor)	5510	5511-5588 (78)	AI313387
ESTs	5589	5590-5646 (57)	AA909635
adducin 1 (alpha)	5647	5648-5705 (58)	R00103
5' nucleotidase (CD73)	5706	5707-5767 (61)	N35316
ESTs, Moderately similar to semaphorin C [M.musculus]	5768	5769-5823 (55)	AA293300
ESTs	5824	5825-5892 (68)	AA278764
ESTs	5893	5894-5926 (33)	AA678160
calmodulin 2 (phosphorylase kinase, delta)	11 (12)	2923-3107 (185)	NM_001743, AA663941
ESTs	5927	5928-5996 (69)	R42770
high-mobility group (nonhistone chromosomal) protein 17	5997	5998-6095 (98)	H93087
chloride intracellular channel 1	6096	6097-6177 (81)	AA486518
ubiquitin carrier protein	6178	6179-6208 (30)	AA464729
transglutaminase 2 (C polypeptide, protein-glutamine-gamma-glutamyltransferase)	1 (2)	13-552 (540)	M55153, R97066
tubulin, alpha 1 (testis specific)	6209	6210-6270 (61)	AA180912
sparc/osteonectin, cwcv and kazal-like domains proteoglycan (testican)	6271	6272-6343 (72)	AA436142
proteasome (prosome, macropain) 26S subunit, non-ATPase, 2	6344	6345-6413 (69)	H05893
tubulin, beta polypeptide	6414	6415-6485 (71)	H37989
filamin B, beta (actin-binding protein-278)	6486	6487-6551 (65)	AA486238
stanniocalcin	5 (6)	677-1323 (647)	NM_003155, AA085318
low density lipoprotein receptor (familial hypercholesterolemia)	6552	6553-6609 (57)	AA504461
plectin 1, intermediate filament binding protein, 500kD	6610	6611-6683 (73)	AA448400
S100 calcium-binding protein A2	3 (4)	553-676 (124)	BC002829, AA458884
immediate early response 3	6684	6685-6735 (51)	AA480815
calpain, large polypeptide L2	6736	6737-6831 (95)	AA102454
pleckstrin homology-like domain, family A, member 1	6832	6833-6900 (68)	AA258396
melanoma adhesion molecule	6901	6902-6979 (78)	AA497002
CD44 antigen (homing function and Indian blood group system)	6980	6981-7069 (89)	AA282906
programmed cell death 5	7070	7071-7159 (89)	AA156940
hexokinase 1	7160	7161-7209 (49)	AA485272
vascular endothelial growth factor	7210	7211-7290 (80)	R19956
integrin, alpha 2 (CD49B, alpha 2 subunit of VLA-2 receptor)	7291	7292-7396 (105)	AA463610
calumenin	7397	7398-7471 (74)	R78585
syntaxin 11	7472	7473-7526 (54)	R33851
diphtheria toxin receptor	7527	7528-7578 (51)	R14663

(heparin-binding epidermal growth factor-like growth factor)			
Fn14 for type I transmenmbrane protein	7579	7580-7632 (53)	R33355
Nef-associated factor 1	7633	7634-7694 (61)	T64626
high-mobility group (nonhistone chromosomal) protein isoforms I and Y	7695	7696-7753 (58)	AA448261
catechol-O-methyltransferase	7754	7755-7796 (42)	R44202
C-terminal binding protein 1	7797	7798-7864 (67)	W81570
collagen, type XVII, alpha 1	7865	7866-7932 (67)	AA128561
ESTs	7933	7934-8029 (96)	N58473
farnesyl-diphosphate farnesyltransferase 1	8030	8031-8107 (77)	AA679352
RNA helicase-related protein	8108	8109-8147 (39)	N55459
interferon stimulated gene (20kD)	8148	8149-8230 (82)	AA150500
steroid-5-alpha-reductase, alpha polypeptide 1 (3-oxo-5 alpha-steroid delta 4-dehydrogenase alpha 1)	8231	8232-8283 (52)	H16833
prostaglandin-endoperoxide synthase 2 (prostaglandin G/H synthase and cyclooxygenase)	8284	8285-8345 (61)	AA644211
laminin, alpha 3 (nicein (150kD), kalinin (165kD), BM600 (150kD), epilegrin)	8346	8347-8440 (94)	AA001432
collagen, type XVII, alpha 1	8441	8442-8494 (53)	H87536
keratin 18	8495	8496-8601 (106)	AA664179
heparan sulfate (glucosamine) 3-O-sulfotransferase 1	8602	8603-8652 (50)	H86812
tubulin, alpha 2	8653	8654-8765 (112)	AA626698
adenylyl cyclase-associated protein	8766	8767-8833 (67)	R37953
forkhead box D1	8834	8835-8897 (63)	AA069372
cathepsin C	7 (8)	1324-1627 (304)	NM_001814, AA644088
ESTs, Highly similar to AF151802_1 CGI-44 protein [H.sapiens]	8898	8899-8985 (87)	T74688
ribonucleotide reductase M2 polypeptide	8986	8987-9056 (70)	AA187351
laminin, gamma 2 (nicein (100kD), kalinin (105kD), BM600 (100kD), Herlitz junctional epidermolysis bullosa))	9057	9058-9133 (76)	AA677534
Homo sapiens mRNA; cDNA DKFZp586P1622 (from clone DKFZp586P1622)	9134	9135-9221 (87)	T59658
ESTs, Weakly similar to /prediction	9222	9223-9289 (67)	AA284245
lactate dehydrogenase A	9290	9291-9369 (79)	H05914
Total 98 genes		9369 (9277)	

(GENBANK ACCESSION NO. M55153)

AACAGGCGTGACGCCAGTTCTAAACTTGAAACAAAACAAAACTTCAAAGTACACCAAAATAGAACCTCCTTAAAGCATAAATCTCA
CGGAGGGTCTCGGCCGCCAGTGGAAGGAGCCACCGCCCCCGCCCCGACCATGGCCGAGGAGCTGGTCTTAGAGAGGTGTGATCTGG
AGCTGGAGACCAATGGCCGAGACCACCACACGGCCGACCTGTGCCGGGAGAAGCTGGTGGTGCGACGGGGCCAGCCCTTCTGGCT
GACCCTGCACTTTGAGGGCCGCAACTACCAGGCCAGTGTAGACAGTCTCACCTTCAGTGTCGTGACCGGCCCAGCCCCTAGCCAGG
AGGCCGGGACCAAGGCCCGTTTTCCACTAAGAGATGCTGTGGAGGAGGGTGACTGGACAGCCACCGTGGTGGACCAGCAAGACTG
CACCCTCTCGCTGCAGCTCACCACCCCGGCCAACGCCCCCATCGGCCTGTATCGCCTCAGCCTGGAGGCCTCCACTGGCTACCAGGG
ATCCAGCTTTGTGCTGGGCCACTTCATTTTGCTCTTCAACGCCTGGTGCCCAGCGGATGCTGTGTACCTGGACTCGGAAGAGGAGCG
GCAGGAGTATGTCCTCACCCAGCAGGGCTTTATCTACCAGGGCTCGGCCAAGTTCATCAAGAACATACCTTGGAATTTTGGGCAGTT
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CAGCAGCCCCGTCTACGTGGGCCGGGTGGGTAGTGGCATGGTCAACTGCAACGATGACCAGGGTGTGCTGCTGGGACGCTGGGACA
ACAACTACGGGGACGGCGTCAGCCCCATGTCCTGGATCGGCAGCGTGGACATCCTGCGGCGCTGGAAGAACCACGGCTGCCAGCGC
GTCAAGTATGGCCAGTGCTGGGTCTTCGCCGCCGTGGCCTGCACAGTGCTGAGGTGCCTAGGCATCCCTACCCGCGTCGTGACCAAC
TACAACTCGGCCCATGACCAGAACAGCAACCTTCTCATCGAGTACTTCCGCAATGAGTTTGGGGAGATCCAGGGTGACAAGAGCGA

GATGATCTGGAACTTCCACTGCTGGGTGGAGTCGTGGATGACCAGGCCGGACCTGCAGCCGGGGTACGAGGGCTGGCAGGCCCTGGACCCAACGCCCCAGGAGAAGAGCGAAGGAACGTACTGCTGTGGCCCAGTTCCAGTTCGTGCCATCAAGGAGGGCGACCTGAGCACCAAGTACGATGCGCCCTTTGTCTTTGCGGAGGTCAATGCCGACGTGGTAGACTGGATCCAGCAGGACGATGGGTCTGTGCACAAATCCATCAACCGTTCCCTGATCGTTGGGCTGAAGATCAGCACTAAGAGCGTGGGCCGAGACGAGCGGGAGGATATCACCCCACACCTACAAATACCCAGAGGGGTCCTCAGAGGAGAGGGAGGCCTTCACAAGGGCGAACCACCTGAACAAACTGGCCGAGAAGGAGGAGACAGGGATGGCCATGCGGATCCGTGTGGGCCAGAGCATGAACATGGGCAGTGACTTTGACGTCTTTGCCCACATCACCAACAACACCGCTGAGGAGTACGTCTGCCGCCTCCTGCTCTGTGCCCGCACCGTCAGCTACAATGGGATCTTGGGGCCCGAGTGTGGCACCAAGTACCTGCTCAACCTAACCCTGGAGCCTTTCTCTGAGAAGAGCGTTCCTCTTTGCATCCTCTATGAGAAATACCGTGACTGCCTTACGGAGTCCAACCTCATCAAGGTGCGGGCCCTCCTCGTGGAGCCAGTTATCAACAGCTACCTGCTGGCTGAGAGGGACCTCTACCTGGAGAATCCAGAAATCAAGATCCGGATCCTTGGGGAGCCCAAGCAGAAACGCAAGCTGGTGGCTGAGGTGTCCCTGCAGAACCCGCTCCCTGTGGCCCTGGAAGGCTGCACCTTCACTGTGGAGGGGGCCGGCCTGACTGAGGAGCAGAAGACGGTGGAGATCCCAGACCCCGTGGAGGCAGGGGAGGAAGTTAAGGTGAGAATGGACCTCGTGCCGCTCCACATGGGCCTCCACAAGCTGGTGGTGAACTTCGAGAGCGACAAGCTGAAGGCTGTGAAGGGCTTCCGGAATGTCATCATTGGCCCCGCCTAAGGGACCCCTGCTCCCAGCCTGCTGAGAGCCCCCACCTTGATCCCAATCCTTATCCCAAGCTAGTGAGCAAAATATGCCCCTTATTGGGCCCCAGACCCCAGGGCAGGGTGGGCAGCCTATGGGGGCTCTCGGAAATGGAATGTGCCCCTGGCCCATCTCAGCCTCCTGAGCCTGTGGGTCCCCACTCACCCCCTTTGCTGTGAGGAATGCTCTGTGCCAGAAACAGTGGGAGCCCTGACCTGTGCTGACTGGGGCTGGGGTGAGAGAGGAAAGACCTACATTCCCTCTCCTGCCCAGATGCCCTTTGGAAAGCCATTGACCACCCACCATATTGTTTGATCTACTTCATAGCTCCTTGGAGCAGGCAAAAAAGGGACAGCATGCCCTTGGCTGGATCAGGAATCCAGCTCCCTAGACTGCATCCCGTACCTCTTCCCATGACTGCACCCAGCTCCAGGGGCCCTTGGGACACCCAGAGCTGGGTGGGGACAGTGATAGGCCCAAGGTCCCCTCCACATCCCAGCAGCCCAAGCTTAATAGCCCTCCCCCTCAACCTCACCATTGTGAAGCACCTACTATGTGCTGGGTGCCTCCCACACTTGCTGGGGCTCACGGGGCCTCCAACCCATTTAATCACCATGGGAAACTGTTGTGGGCGCTGCTTCCAGGATAAGGAGACTGAGGCTTAGAGAGAGGAGGCAGCCCCCTCCACACCAGTGGCCTCGTGGTTATAAGCAAGGCTGGGTAATGTGAAGGCCCAAGAGCAGAGTCTGGGCCTCTGACTCTGAGTCCACTGCTCCATTTATAACCCCAGCCTGACCTGAGACTGTCGCAGAGGCTGTCTGGGGCCTTTATCAAAAAAGACTCAGCCAAGACAAGGAGGTAGAGAGGGGACTGGGGGACTGGGAGTCAGAGCCCTGGCTGGGTTCAGGTCCCACGTCTGGCCAGCGACTGCCTTCTCCTCTCTGGGCCTTTGTTTCCTTGTTGGTCAGAGGAGTGATTGAACCTGCTCATCTCCAAGGATCCTCTCCACTCCATGTTTGCAATACACAATTCC

(SEQ ID NO: 1)

Amino acid sequence for G-protein G-alpha H (GENBANK ACCESSION No. M55153)

MetAlaGluGluLeuValLeuGluArgCysAspLeuGluLeuGluThrAsnGlyArgAspHisHisThrAlaAspLeuCysArgGluLysLeuValValArgArgGlyGlnProPheTrpLeuThrLeuHisPheGluGlyArgAsnTyrGlnAlaSerValAspSerLeuThrPheSerValValThrGlyProAlaProSerGlnGluAlaGlyThrLysAlaArgPheProLeuArgAspAlaValGluGluGlyAspTrpThrAlaThrValValAspGlnGlnAspCysThrLeuSerLeuGlnLeuThrThrProAlaAsnAlaProIleGlyLeuTyrArgLeuSerLeuGluAlaSerThrGlyTyrGlnGlySerSerPheValLeuGlyHisPheIleLeuLeuPheAsnAlaTrpCysProAlaAspAlaValTyrLeuAspSerGluGluGluArgGlnGluTyrValLeuThrGlnGlnGlyPheIleTyrGlnGlySerAlaLysPheIleLysAsnIleProTrpAsnPheGlyGlnPheGlnAspGlyIleLeuAspIleCysLeuIleLeuLeuAspValAsnProLysPheLeuLysAsnAlaGlyArgAspCysSerArgArgSerSerProValTyrValGlyArgValGlySerGlyMetValAsnCysAsnAspAspGlnGlyValLeuLeuGlyArgTrpAspAsnAsnTyrGlyAspGlyValSerProMetSerTrpIleGlySerValAspIleLeuArgArgTrpLysAsnHisGlyCysGlnArgValLysTyrGlyGlnCysTrpValPheAlaAlaValAlaCysThrValLeuArgCysLeuGlyIleProThrArgValValThrAsnTyrAsnSerAlaHisAspGlnAsnSerAsnLeuLeuIleGluTyrPheArgAsnGluPheGlyGluIleGlnGlyAspLysSerGluMetIleTrpAsnPheHisCysTrpValGluSerTrpMetThrArgProAspLeuGlnProGlyTyrGluGlyTrpGlnAlaLeuAspProThrProGlnGluLysSerGluGlyThrTyrCysCysGlyProValProValArgAlaIleLysGluGlyAspLeuSerThrLysTyrAspAlaProPheValPheAlaGluValAsnAlaAspValValAspTrpIleGlnGlnAspAspGlySerValHisLysSerIleAsnArgSerLeuIleValGlyLeuLysIleSerThrLysSerValGlyArgAspGluArgGluAspIleThrHisThrTyrLysTyrProGluGlySerSerGluGluArgGluAlaPheThrArgAlaAsnHisLeuAsnLysLeuAlaGluLysGluGluThrGlyMetAlaMetArgIleArgValGlyGlnSerMetAsnMetGlySerAspPheAspValPheAlaHisIleThrAsnAsnThrAlaGluGluTyrValCysArgLeuLeuLeuCysAlaArgThrValSerTyrAsnGlyIleLeuGlyProGluCysGlyThrLysTyrLeuLeuAsnLeuThrLeuGluProPheSerGluLysSerValProLeuCysIleLeuTyrGluLysTyrArgAspCysLeuThrGluSerAsnLeuIleLysValArgAlaLeuLeuValGluProValIleAsnSerTyrLeuLeuAlaGluArgAspLeuTyrLeuGluAsnProGluIleLysIleArgIleLeuGlyGluProLysGlnLysArgLysLeuValAlaGluValSerLeuGlnAsnProLeuProValAlaLeuGluGlyCysThrPheThrValGluGlyAlaGlyLeuThrGluGluGlnLysThrValGluIleProAspProValGluAlaGlyGluGluValLysValArgMetAspLeuValProLeuHisMetGlyLeuHisLysLeuValValAsnPheGluSerAspLysLeuLysAlaValLysGlyPheArgAsnValIleIleGlyProAla (SEQ ID NO: 2).

(GENBANK ACCESSION NO. BC002829)

GGCACGAGGCTCCCCTCACCCCGGTCCAGGATGCCCAGTCCCCACGACACCTCCCACTTCCCACTGTGGCCTGGGTGGGCTCAGGGGCTGCCCTTGACCTGGCCTAGAGCCCTCCCCCAGCTGGTGGTGGAGCTGGCACTCTCTGGGAGGGAGGGGGCTGGGAGGGAATGAGTGGGAATGGCAAGAGGCCAGGGTTTGGTGGGATCAGGTTGAGGCAGGTTTGGTTTCCTTAAAATGCCAAGTTGGGGGCCAGTGGGGCCCACATATAAATCCTCACCCTGGGAGCCTGGCTGCCTTGCTCTCCTTCCTGGGTCTGTCTCTGCCACCTGGTCTGCCACAGATCCATGATGTGCAGTTCTCTGGAGCAGGCGCTGGCTGTGCTGGTCACTACCTTCCACAAGTACTCCTGCCAAGAGGGCGACAAGTTCAAGCTGAGTAAGGGGGAAATGAAGGAACTTCTGCACAAGGAGCTGCCCAGCTTTGTGGGGGAGAAAGTGGATGAGGAGGGGCTGAAGAAGCTGATGGGCAGCCTGGATGAGAACAGTGACCAGCAGGTGGACTTCCAGGAGTATGCTGTTTTCCTGGCACTCATCACTGTCATGTGCAATGACTTCTTCCAGGGCTGCCCAGACCGACCCTGAAGCAGAACTCTTGACTTCCTGCCATGGATCTTTTGGGCCCAGGACTGTTGATGCCTTTGAGTTTTGTATTCAATAAACTTTTTTTGTCTGTTGAAAAAAAAAAAAAAAAAAAAAAAA

(SEQ ID NO: 3)

Amino acid sequence for S100A2 (GENBANK ACCESSION No. BC002829)

MetMetCysSerSerLeuGluGlnAlaLeuAlaValLeuValThrThrPheHisLysTyrSerCysGlnGluGlyAspLysPheLysLeuSerLysGlyGluMetLysGluLeuLeuHisLysGluLeuProSerPheValGlyGluLysValAspGluGluGlyLeuLysLysLeuMetGlySerLeuAspGluAsnSerAspGlnGlnValAspPheGlnGluTyrAlaValPheLeuAlaLeuIleThrValMetCysAsnAspPhePheGlnGlyCysProAspArgPro (SEQ ID NO: 4).

(GENBANK ACCESSION NO. NM_003155)

CAGTTTGCAAAAGCCAGAGGTGCAAGAAGCAGCGACTGCAGCAGCAGCAGCAGCAGCGGCGGTGGCAGCAGCAGCAGCAGCGGCGGCAGCAGCAGCAGCAGCGGAGGCACCGGTGGCAGCAGCAGCATCACCAGCAACAACAACAAAAAAAAAATCCTCATCAAATCCTCACCTAAGCTTTCAGTGTATCCAGATCCACATCTTCACTCAAGCCAGGAGAGGGAAAGAGGAAAGGGGGGCAGGAAAAAAAAAAACCCAACAACTTAGCGGAAACTTCTCAGAGAATGCTCCAAAACTCAGCAGTGCTTCTGGTGCTGGTGATCAGTGCTTCTGCAACCCATGAGGCGGAGCAGAATGACTCTGTGAGCCCCAGGAAATCCCGAGTGGCGGCTCAAAACTCAGCTGAAGTGGTTCGTTGCCTCAACAGTGCTCTACAGGTCGGCTGCGGGGCTTTTGCATGCCTGGAAAACTCCACCTGTGACACAGATGGGATGTATGACATCTGTAAATCCTTCTTGTACAGCGCTGCTAAATTTGACACTCAGGGAAAAGCATTCGTCAAAGAGAGCTTAAAATGCATCGCCAACGGGGTCACCTCCAAGGTCTTCCTCGCCATTCGGAGGTGCTCCACTTTCCAAAGGATGATTGCTGAGGTGCAGGAAGAGTGCTACAGCAAGCTGAATGTGTGCAGCATCGCCAAGCGGAACCCTGAAGCCATCACTGAGGTCGTCCAGCTGCCCAATCACTTCTCCAACAGATACTATAACAGACTT

GTCCGAAGCCTGCTGGAATGTGATGAAGACACAGTCAGCACAATCAGAGACAGCCTGATGGAGAAAATTGGGCCTAACATGGCCA
GCCTCTTCCACATCCTGCAGACAGACCACTGTGCCCAAACACACCCACGAGCTGACTTCAACAGGAGACGCACCAATGAGCCGCAG
AAGCTGAAAGTCCTCCTCAGGAACCTCCGAGGTGAGGAGGACTCTCCCTCCCACATCAAACGCACATCCCATGAGAGTGCATAACC
AGGGAGAGGTTATTCACAACCTCACCAAACTAGTATCATTTTAGGGGTGTTGACACACCAATTTTGAGTGTACTGTGCCTGGTTTGA
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AATTCGTGTTATGAATCTGTGCTGGCCATGGACGAATATGAATGTCACATTTGAATTCTTGATCTCTAATGAGCTAGTGTCTTATGGT
CTTGATCCTCCAATGTCTAATTTTCTTTCCGACACATTTACCAAATTGCTTGAGCCTGGCTGTCCAACCAGACTTTGAGCCTGCATCT
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AACAAAGCAGTATATAATAACTTTATTGCATATAGATTTAGTTTTGTAACTTAGCTTTATTTTTCTTTTCCTGGGAATGGAATAACTA
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TAAGATGGGCCTGTATGAGACAGGAAAAACCAACAGGTTTATCTGAAGGACCCCAGGTAAGATGTTAATCTCCCAGCCCACCTCAA
CCCAGAGGCTACTCTTGACTTAGACCTATACTGAAAGATCTCTGTCACATCCAACTGGAAATTCCAGGAACCAAAAAGAGCATCCCT
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ACATTGCTGCCTTTGTCCCCACACAGCCTCTAAGCGTGCTGACATCAGATTGTTAAGGGCATTTTTATACTCAGAACTGTCCCATCCC
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AGTACTGGAATAAACAGTGAGCATATCTGGTATATGTCATTATTTATTGTTAAATTACATTTTTTAAGCTCCATGTGCATATAAAGGT
TATGAAACATATCATGGTAATGACAGATGCAAGTTATTTTATTTGCTTATTTTTTATAATTAAAGATGCCATAGCATAATATGAAGCC
TTTGGTGAATTCCTTCTAAGATAAAAATAATAATAAAGTGTTACGTTTTATTGGTTTCAAAAAAAAAAAAAAAAAAAA
(SEQ ID NO: 5)

Amino acid sequence for Stanniocalcin 1 (GENBANK ACCESSION No. NM_003155)

MetLeuGlnAsnSerAlaValLeuLeuValLeuValIleSerAlaSerAlaThrHisGluAlaGluGlnAsnAspSerValSerProArgLysSerA
rgValAlaAlaGlnAsnSerAlaGluValValArgCysLeuAsnSerAlaLeuGlnValGlyCysGlyAlaPheAlaCysLeuGluAsnSerThrCy
sAspThrAspGlyMetTyrAspIleCysLysSerPheLeuTyrSerAlaAlaLysPheAspThrGlnGlyLysAlaPheValLysGluSerLeuLys
CysIleAlaAsnGlyValThrSerLysValPheLeuAlaIleArgArgCysSerThrPheGlnArgMetIleAlaGluValGlnGluGluCysTyrS
erLysLeuAsnValCysSerIleAlaLysArgAsnProGluAlaIleThrGluValValGlnLeuProAsnHisPheSerAsnArgTyrTyrAsnAr
gLeuValArgSerLeuLeuGluCysAspGluAspThrValSerThrIleArgAspSerLeuMetGluLysIleGlyProAsnMetAlaSerLeuPhe
HisIleLeuGlnThrAspHisCysAlaGlnThrHisProArgAlaAspPheAsnArgArgArgThrAsnGluProGlnLysLeuLysValLeuLeuA
rgAsnLeuArgGlyGluGluAspSerProSerHisIleLysArgThrSerHisGluSerAla (SEQ ID NO: 6).

(GENBANK ACCESSION NO. NM_001814)

AATTCTTCACCTCTTTTCTCAGCTCCCTGCAGCATGGGTGCTGGGCCCTCCTTGCTGCTCGCCGCCCTCCTGCTGCTTCTCTCCGGCG
ACGGCGCCGTGCGCTGCGACACACCTGCCAACTGCACCTATCTTGACCTGCTGGGCACCTGGGTCTTCCAGGTGGGCTCCAGCGGTT
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CAGACCCCAATCCTAAGCCCTCAGGAGGTTGTGTCTTGTAGCCAGTATGCTCAAGGCTGTGAAGGCGGCTTCCCATACCTTATTGCA
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TTTTAAATTGTACCAATCACAAGAAAATAATGGCAATAATTATCAAAACTTTTAAAATAGATGCTCATATTTTTAAAATAAAGTTTT
AAAAATAACTGC
(SEQ ID NO: 7)

Amino acid sequence for Cathepsin C

(GENBANK ACCESSION No. NM_001814)

MetGlyAlaGlyProSerLeuLeuLeuAlaAlaLeuLeuLeuLeuLeuSerGlyAspGlyAlaValArgCysAspThrProAlaAsnCysThrTyrL

euAspLeuLeuGlyThrTrpValPheGlnValGlySerSerGlySerGlnArgAspValAsnCysSerValMetGlyProGlnGluLysLysValVa
lValTyrLeuGlnLysLeuAspThrAlaTyrAspAspLeuGlyAsnSerGlyHisPheThrIleIleTyrAsnGlnGlyPheGluIleValLeuAsn
AspTyrLysTrpPheAlaPhePheLysTyrLysGluGluGlySerLysValThrThrTyrCysAsnGluThrMetThrGlyTrpValHisAspValL
euGlyArgAsnTrpAlaCysPheThrGlyLysLysValGlyThrAlaSerGluAsnValTyrValAsnThrAlaHisLeuLysAsnSerGlnGluLy
sTyrSerAsnArgLeuTyrLysTyrAspHisAsnPheValLysAlaIleAsnAlaIleGlnLysSerTrpThrAlaThrThrTyrMetGluTyrGlu
ThrLeuThrLeuGlyAspMetIleArgArgSerGlyGlyHisSerArgLysIleProArgProLysProAlaProLeuThrAlaGluIleGlnGlnL
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(GENBANK ACCESSION NO. NM_012334)
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(SEQ ID NO: 9)

Amino acid sequence for Myosin X (GENBANK ACCESSION No. NM-012334)

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(GENBANK ACCESSION NO. NM_001743)
GGCACGAGGGCGCGGCGGAGCTGGAACTGCTGCAGCTGCTGCCGCCGCCGGAGGAACCTTGATCCCCGTGCTCCGGACACCCCGGGCCTCGCCATGGCTGACCAGCTGACTGAGGAGCAGATTGCAGAGTTCAAGGAGGCCTTCTCCCTCTTTGACAAGGATGGAGATGGCACTATCACCACCAAGGAGTTGGGGACAGTGATGAGATCCCTGGGACAGAACCCCACTGAAGCAGAGCTGCAGGATATGATCAATGAGGTGGATGCAGATGGGAACGGGACCATTGACTTCCCGGAGTTCCTGACCATGATGGCCAGAAAGATGAAGGACACAGACAGTGAGGAGGAGATCCGAGAGGCGTTCCGTGTCTTTGACAAGGATGGGAATGGCTACATCAGCGCCGCAGAGCTGCGTCACGTAATGACGAACCTGGGGGAGAAGCTGACCGATGAGGAGGTGGATGAGATGATCAGGGAGGCTGACATCGATGGAGATGGCCAGGTCAATTATGAAGAGTTTGTACAGATGATGACTGCAAAGTGAAGGCCCCCCGGGCAGCTGGCGATGCCCGTTCTCTTGATCTCTCTCTTCTCGCGCGCGCACTCTCTCTTCAACACTCCCCTGCGTACCCCGGTTCTAGCAAACACCAATTGATTGACTGAGAATCTGATAAAGCAACAAAAGATTTGTCCCAAGCTGCATGATTGCTCTTTCTCCTTCTTCCCTGAGTCTCTCTCCATGCCCCTCATCTCTTCCTTTTGCCCTCGCCTCTTCCATCCATGTCTTCCAAGGCCTGATGCATTCATAAGTTGAAGCCCTCCCCAGATCCCCTTGGGGAGCCTCTGCCCTCCTCCAGCCCGGATGGCTCTCCTCCATTTTGGTTTGTTTCCTCTTGTTTGTCATCTTATTTTGGGTGCTGGGGTGGCTGCCAGCCCTGTCCCGGGACCTGCTGGGAGGGACAAGAGGCCCTCCCCCAGGCAGAAGAGCATGCCCTTTGCCGTTGCATGCAACCAGCCCTGTGATTCCACGTGCAGATCCCAGCAGCCTGTTGGGGCAGGGGTGCCAAGAGAGGCATTCCAGAAGGACTGAGGGGGCGTTGAGGAATTGTGGCGTTGACTGGATGTGGCCCAGGAGGGGGTCGAGGGGGCCAACTCACAGAAGGGGACTGACAGTGGGCAACACTCACATCCCACTGGCTGCTGTTCTGAAACCATCTGATTGGCTTTCTGAGGTTTGGCTGGGTGGGGACTGCTCATTTGGCCACTCTGCAGATTGGACTTGCCCGCGTTCCTGAAGCGCTCTCGAGCTGTTCTGTAAATACCTGGTGCTAACATCCCATGCCGCTCCCTCCTCACGATGCACCCACCGCCCTGAGGGCCCGTCCTAGGAATGGATGTGGGGATGGTCGCTTTGTAATGTGCTGGTTCTCTTTTTTTTTCTTTCCCCTCTATGGCCCTTAAGACTTTCATTTTGTTCAGAACCATGCTGGGCTAGCTAAAGGGTGGGGAGAGGGAAGATGGGCCCCACCACGCTCTCAAGAGAACGCACCTGCAATAAAACAGTCTTGTCGGCCAGCTGCCCAGGGGACGGCAGCTACAGCAGCCTCTGCGTCCTGGTCCGCCAGCACCTCCCGCTTCTCCGTGGTGACTTGGCGCCGCTTCCTCACATCTGTGCTCCGTGCCCTCTTCCCTGCCTCTTCCCTCGCCCACCTGCCTGCCCCCATACTCCCCCAGCGGAGAGCATGATCCGTGCCCTTGCTTCTGACTTTCGCCTCTGGGACAAGTAAGTCAATGTGGGCAGTTCAGTCGTCTGGGTTTTTTCCCCTTTTCTGTTCATTTCATCTGGCTCCCCCCACCACCTCCCCACCCCACCCCCCACCCCCTGCTTCCCCTCACTGCCCAGGTCGATCAAGTGGCTTTTCCTGGGACCTGCCCAGCTTTGAGAATCTCTTCTCATCCACCCTCTGGCACCCAGCCTCTGAGGGAAGGAGGGATGGGGCATAGTGGGAGACCCAGCCAAGAGCTGAGGGTAAGGTCAGGTAGGCGTGAGGCTGTGGACATTTTCGGAATGTTTTGGTTTTGTTTTTTTTAAACCGGGCAATATTGTGTTCAGTTCAAGCTGTGAAGAAAAATATATATCAATGTTTTCCAATAAAATACAGTGACTACCTGAAAAAAAAAAAAAAAAAAA
(SEQ ID NO: 11)

Amino acid sequence for Calmodulin 2 (GENBANK ACCESSION No. NM_001743)
MetAlaAspGlnLeuThrGluGluGlnIleAlaGluPheLysGluAlaPheSerLeuPheAspLysAspGlyAspGlyThrIleThrThrLysGluLeuGlyThrValMetArgSerLeuGlyGlnAsnProThrGluAlaGluLeuGlnAspMetIleAsnGluValAspAlaAspGlyAsnGlyThrIleAspPheProGluPheLeuThrMetMetAlaArgLysMetLysAspThrAspSerGluGluGluIleArgGluAlaPheArgValPheAspLysAspGlyAsnGlyTyrIleSerAlaAlaGluLeuArgHisValMetThrAsnLeuGlyGluLysLeuThrAspGluGluValAspGluMetIleArgGluAlaAspIleAspGlyAspGlyGlnValAsnTyrGluGluPheValGlnMetMetThrAlaLys (SEQ ID NO: 12).

SEQ ID NO, GENBANK ACCESSION NO,, Length of oligo, Position of First nucleotide of oligo in target nucleic acid, Sequence of oligo
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14,M55153,,20,3232,GTGTATTGCAAACATGGAGT,,
15,M55153,,20,3226,TGCAAACATGGAGTGGAGAG,,
16,M55153,,20,3220,CATGGAGTGGAGAGGATCCT,,
17,M55153,,20,3214,GTGGAGAGGATCCTTGGAGA,,
18,M55153,,20,3208,AGGATCCTTGGAGATGAGCA,,
19,M55153,,20,3202,CTTGGAGATGAGCAGGTTCA,,
20,M55153,,20,3196,GATGAGCAGGTTCAATCACT,,
21,M55153,,20,3190,CAGGTTCAATCACTCCTCTG,,
22,M55153,,20,3184,CAATCACTCCTCTGACCAAC,,
23,M55153,,20,3178,CTCCTCTGACCAACAAGGAA,,

24,M55153,,20,3172,TGACCAACAAGGAAACAAAG,,
25,M55153,,20,3166,ACAAGGAAACAAAGGCCCAG,,
26,M55153,,20,3160,AAACAAAGGCCCAGAGAGGA,,
27,M55153,,20,3154,AGGCCCAGAGAGGAGAAGGC,,
28,M55153,,20,3148,AGAGAGGAGAAGGCAGTCGC,,
29,M55153,,20,3142,GAGAAGGCAGTCGCTGGCCA,,
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31,M55153,,20,3130,GCTGGCCAGACGTGGGACCT,,
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33,M55153,,20,3118,TGGGACCTGAACCCAGCCAG,,
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38,M55153,,20,3088,CCCAGTCCCCCAGTCCCCTC,,
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227,M55153,,20,1954,AGCGGGTTCTGCAGGGACAC,,
228,M55153,,20,1948,TTCTGCAGGGACACCTCAGC,,
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3250,NM_001743,,20,209,AGTGGGGTTCTGTCCCAGGG,,
3251,NM_001743,,20,203,GTTCTGTCCCAGGGATCTCA,,
3252,NM_001743,,20,197,TCCCAGGGATCTCATCACTG,,
3253,NM_001743,,20,191,GGATCTCATCACTGTCCCCA,,
3254,NM_001743,,20,185,CATCACTGTCCCCAACTCCT,,
3255,NM_001743,,20,179,TGTCCCCAACTCCTTGGTGG,,
3256,NM_001743,,20,173,CAACTCCTTGGTGGTGATAG,,
3257,NM_001743,,20,167,CTTGGTGGTGATAGTGCCAT,,
3258,NM_001743,,20,161,GGTGATAGTGCCATCTCCAT,,
3259,NM_001743,,20,155,AGTGCCATCTCCATCCTTGT,,
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3261,NM_001743,,20,143,ATCCTTGTCAAAGAGGGAGA,,
3262,NM_001743,,20,137,GTCAAAGAGGGAGAAGGCCT,,
3263,NM_001743,,20,131,GAGGGAGAAGGCCTCCTTGA,,
3264,NM_001743,,20,125,GAAGGCCTCCTTGAACTCTG,,
3265,NM_001743,,20,119,CTCCTTGAACTCTGCAATCT,,
3266,NM_001743,,20,113,GAACTCTGCAATCTGCTCCT,,
3267,NM_001743,,20,107,TGCAATCTGCTCCTCAGTCA,,
3268,NM_001743,,20,101,CTGCTCCTCAGTCAGCTGGT,,
3269,NM_001743,,20,95,CTCAGTCAGCTGGTCAGCCA,,
3270,NM_001743,,20,89,CAGCTGGTCAGCCATGGCGA,,
3271,NM_001743,,20,83,GTCAGCCATGGCGAGGCCCG,,
3272,NM_001743,,20,77,CATGGCGAGGCCCGGGGTGT,,
3273,NM_001743,,20,71,GAGGCCCGGGGTGTCCGGAG,,
3274,NM_001743,,20,65,CGGGGTGTCCGGAGCACGGG,,
3275,NM_001743,,20,59,GTCCGGAGCACGGGGATCAA,,
3276,NM_001743,,20,53,AGCACGGGGATCAAGGTTCC,,
3277,NM_001743,,20,47,GGGATCAAGGTTCCTCCGGC,,
3278,NM_001743,,20,41,AAGGTTCCTCCGGCGGCGGC,,
3279,NM_001743,,20,35,CCTCCGGCGGCGGCAGCAGC,,
3280,NM_001743,,20,29,GCGGCGGCAGCAGCTGCAGC,,
3281,NM_001743,,20,23,GCAGCAGCTGCAGCAGTTCC,,
3282,NM_001743,,20,17,GCTGCAGCAGTTCCAGCTCC,,
3283,NM_001743,,20,11,GCAGTTCCAGCTCCGCCGCG,,
3284,NM_001743,,20,5,CCAGCTCCGCCGCGCCCTCG,,

(GENBANK ACCESSION NO. AI095013)
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ACAGAGTGCTCAGTTCTTCCGTAGAAATGGTGGGTGGCTCTGAAAAGAGCCTTTTGTCTTGTAAGTTTACATTTTTAAAGTTCAGCCC
TTACTTGCCCTTAGCTTTGTGGTGGCTCTCAGTCTTCTTGGGGAGCAGTACGGCCTGGATGTTAGGCAGAACACCGCCCTGAGCGAT
GGTAACTTTACCAAGCAGCTTGTTGAGCTCCTCGTCGTTGCGGATGGCCAGCTGCAAGTGGCGCGGGATGATGCGGGTCTTTTTGTT
GTCGCGGGCTGCGTTGCCCGCCAGCTCCAGGATCTCGGCAGTTAGGTACTCCAGCACCGCCGCCAGGTAAACCGGCGCGCCGGCCC
CGACCCGCTCAGCGTAGTTGCCCTTGCGGAGCAAGCGGTGCACTCGTCCTAC
(SEQ ID NO: 3285)

3286,AI095013,,20,469,GTAGGACGAGTGCACCGCTT,,
3287,AI095013,,20,463,CGAGTGCACCGCTTGCTCCG,,
3288,AI095013,,20,457,CACCGCTTGCTCCGCAAGGG,,
3289,AI095013,,20,451,TTGCTCCGCAAGGGCAACTA,,
3290,AI095013,,20,445,CGCAAGGGCAACTACGCTGA,,
3291,AI095013,,20,439,GGCAACTACGCTGAGCGGGT,,
3292,AI095013,,20,433,TACGCTGAGCGGGTCGGGGC,,
3293,AI095013,,20,427,GAGCGGGTCGGGGCCGGCGC,,
3294,AI095013,,20,421,GTCGGGGCCGGCGCGCCGGT,,
3295,AI095013,,20,415,GCCGGCGCGCCGGTTTACCT,,
3296,AI095013,,20,409,GCGCCGGTTTACCTGGCGGC,,
3297,AI095013,,20,403,GTTTACCTGGCGGCGGTGCT,,
3298,AI095013,,20,397,CTGGCGGCGGTGCTGGAGTA,,
3299,AI095013,,20,391,GCGGTGCTGGAGTACCTAAC,,
3300,AI095013,,20,385,CTGGAGTACCTAACTGCCGA,,
3301,AI095013,,20,379,TACCTAACTGCCGAGATCCT,,
3302,AI095013,,20,373,ACTGCCGAGATCCTGGAGCT,,
3303,AI095013,,20,367,GAGATCCTGGAGCTGGCGGG,,
3304,AI095013,,20,361,CTGGAGCTGGCGGGCAACGC,,
3305,AI095013,,20,355,CTGGCGGGCAACGCAGCCCG,,
3306,AI095013,,20,349,GGCAACGCAGCCCGCGACAA,,
3307,AI095013,,20,343,GCAGCCCGCGACAACAAAAA,,
3308,AI095013,,20,337,CGCGACAACAAAAAGACCCG,,
3309,AI095013,,20,331,AACAAAAAGACCCGCATCAT,,
3310,AI095013,,20,325,AAGACCCGCATCATCCCGCG,,
3311,AI095013,,20,319,CGCATCATCCCGCGCCACTT,,
3312,AI095013,,20,313,ATCCCGCGCCACTTGCAGCT,,
3313,AI095013,,20,307,CGCCACTTGCAGCTGGCCAT,,
3314,AI095013,,20,301,TTGCAGCTGGCCATCCGCAA,,

3315,AI095013,,20,295,CTGGCCATCCGCAACGACGA,,
3316,AI095013,,20,289,ATCCGCAACGACGAGGAGCT,,
3317,AI095013,,20,283,AACGACGAGGAGCTCAACAA,,
3318,AI095013,,20,277,GAGGAGCTCAACAAGCTGCT,,
3319,AI095013,,20,271,CTCAACAAGCTGCTTGGTAA,,
3320,AI095013,,20,265,AAGCTGCTTGGTAAAGTTAC,,
3321,AI095013,,20,259,CTTGGTAAAGTTACCATCGC,,
3322,AI095013,,20,253,AAAGTTACCATCGCTCAGGG,,
3323,AI095013,,20,247,ACCATCGCTCAGGGCGGTGT,,
3324,AI095013,,20,241,GCTCAGGGCGGTGTTCTGCC,,
3325,AI095013,,20,235,GGCGGTGTTCTGCCTAACAT,,
3326,AI095013,,20,229,GTTCTGCCTAACATCCAGGC,,
3327,AI095013,,20,223,CCTAACATCCAGGCCGTACT,,
3328,AI095013,,20,217,ATCCAGGCCGTACTGCTCCC,,
3329,AI095013,,20,211,GCCGTACTGCTCCCCAAGAA,,
3330,AI095013,,20,205,CTGCTCCCCAAGAAGACTGA,,
3331,AI095013,,20,199,CCCAAGAAGACTGAGAGCCA,,
3332,AI095013,,20,193,AAGACTGAGAGCCACCACAA,,
3333,AI095013,,20,187,GAGAGCCACCACAAAGCTAA,,
3334,AI095013,,20,181,CACCACAAAGCTAAGGGCAA,,
3335,AI095013,,20,175,AAAGCTAAGGGCAAGTAAGG,,
3336,AI095013,,20,169,AAGGGCAAGTAAGGGCTGAA,,
3337,AI095013,,20,163,AAGTAAGGGCTGAACTTTAA,,
3338,AI095013,,20,157,GGGCTGAACTTTAAAAATGT,,
3339,AI095013,,20,151,AACTTTAAAAATGTAAACTT,,
3340,AI095013,,20,145,AAAAATGTAAACTTACAAGA,,
3341,AI095013,,20,139,GTAAACTTACAAGACAAAAG,,
3342,AI095013,,20,133,TTACAAGACAAAAGGCTCTT,,
3343,AI095013,,20,127,GACAAAAGGCTCTTTTCAGA,,
3344,AI095013,,20,121,AGGCTCTTTTCAGAGCCACC,,
3345,AI095013,,20,115,TTTTCAGAGCCACCCACCAT,,
3346,AI095013,,20,109,GAGCCACCCACCATTTCTAC,,
3347,AI095013,,20,103,CCCACCATTTCTACGGAAGA,,
3348,AI095013,,20,97,ATTTCTACGGAAGAACTGAG,,
3349,AI095013,,20,91,ACGGAAGAACTGAGCACTCT,,
3350,AI095013,,20,85,GAACTGAGCACTCTGTTCTC,,
3351,AI095013,,20,79,AGCACTCTGTTCTCCAAACC,,
3352,AI095013,,20,73,CTGTTCTCCAAACCTATCAG,,
3353,AI095013,,20,67,TCCAAACCTATCAGAAATTT,,
3354,AI095013,,20,61,CCTATCAGAAATTTGTGGCC,,
3355,AI095013,,20,55,AGAAATTTGTGGCCGAGTTC,,
3356,AI095013,,20,49,TTGTGGCCGAGTTCAAGCAC,,
3357,AI095013,,20,43,CCGAGTTCAAGCACTGAGGC,,
3358,AI095013,,20,37,TCAAGCACTGAGGCCATTAC,,
3359,AI095013,,20,31,ACTGAGGCCATTACTTTCCT,,
3360,AI095013,,20,25,GCCATTACTTTCCTATTGGG,,
3361,AI095013,,20,19,ACTTTCCTATTGGGTAAAAT,,
3362,AI095013,,20,13,CTATTGGGTAAAATAAAAGT,,
3363,AI095013,,20,7,GGTAAAATAAAAGTATTGAA,,
3364,AI095013,,20,1,ATAAAAGTATTGAATCAGGA,,
(GENBANK ACCESSION NO. AI672565)
GCGGCCGCTCCAACATCGCTGTGACTGTCTCCAGGGCTTCCAGCTGACCCACTCTCTGGGGGGCGGCACGGGGTCCGGGATGGGCA
CCCTGCTCATCAGCAAGATCCGGGAAGAGTACCCAGACCGCATCATGAACACCTTCAGCGTCATGCCCTCACCCAAGGTGTCAGAC
ACGGTGGTGGAGCCCTACAACGCCACCCTCTCGGTCCACCAGCTGGTGGAAAACACAGATGAAACCTACTCCATTGATAACG
(SEQ ID NO: 3365)

3366,AI672565,,20,235,CGTTATCAATGGAGTAGGTT,,
3367,AI672565,,20,229,CAATGGAGTAGGTTTCATCT,,
3368,AI672565,,20,223,AGTAGGTTTCATCTGTGTTT,,
3369,AI672565,,20,217,TTTCATCTGTGTTTTCCACC,,
3370,AI672565,,20,211,CTGTGTTTTCCACCAGCTGG,,
3371,AI672565,,20,205,TTTCCACCAGCTGGTGGACC,,
3372,AI672565,,20,199,CCAGCTGGTGGACCGAGAGG,,
3373,AI672565,,20,193,GGTGGACCGAGAGGGTGGCG,,
3374,AI672565,,20,187,CCGAGAGGGTGGCGTTGTAG,,
3375,AI672565,,20,181,GGGTGGCGTTGTAGGGCTCC,,
3376,AI672565,,20,175,CGTTGTAGGGCTCCACCACC,,
3377,AI672565,,20,169,AGGGCTCCACCACCGTGTCT,,
3378,AI672565,,20,163,CCACCACCGTGTCTGACACC,,
3379,AI672565,,20,157,CCGTGTCTGACACCTTGGGT,,
3380,AI672565,,20,151,CTGACACCTTGGGTGAGGGC,,
3381,AI672565,,20,145,CCTTGGGTGAGGGCATGACG,,
3382,AI672565,,20,139,GTGAGGGCATGACGCTGAAG,,
3383,AI672565,,20,133,GCATGACGCTGAAGGTGTTC,,
3384,AI672565,,20,127,CGCTGAAGGTGTTCATGATG,,

3385,AI672565,,20,121,AGGTGTTCATGATGCGGTCT,,
3386,AI672565,,20,115,TCATGATGCGGTCTGGGTAC,,
3387,AI672565,,20,109,TGCGGTCTGGGTACTCTTCC,,
3388,AI672565,,20,103,CTGGGTACTCTTCCCGGATC,,
3389,AI672565,,20,97,ACTCTTCCCGGATCTTGCTG,,
3390,AI672565,,20,91,CCCGGATCTTGCTGATGAGC,,
3391,AI672565,,20,85,TCTTGCTGATGAGCAGGGTG,,
3392,AI672565,,20,79,TGATGAGCAGGGTGCCCATC,,
3393,AI672565,,20,73,GCAGGGTGCCCATCCCGGAC,,
3394,AI672565,,20,67,TGCCCATCCCGGACCCCGTG,,
3395,AI672565,,20,61,TCCCGGACCCCGTGCCGCCC,,
3396,AI672565,,20,55,ACCCCGTGCCGCCCCCCAGA,,
3397,AI672565,,20,49,TGCCGCCCCCCAGAGAGTGG,,
3398,AI672565,,20,43,CCCCCAGAGAGTGGGTCAGC,,
3399,AI672565,,20,37,GAGAGTGGGTCAGCTGGAAG,,
3400,AI672565,,20,31,GGGTCAGCTGGAAGCCCTGG,,
3401,AI672565,,20,25,GCTGGAAGCCCTGGAGACAG,,
3402,AI672565,,20,19,AGCCCTGGAGACAGTCACAG,,
3403,AI672565,,20,13,GGAGACAGTCACAGCGATGT,,
3404,AI672565,,20,7,AGTCACAGCGATGTTGGAGC,,
3405,AI672565,,20,1,AGCGATGTTGGAGCGGCCGC,,
(GENBANK ACCESSION NO. AI652901)
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ATCATAAGCAGGGACTGCTCAAGAAGCGCAGGGAGGGCCGAGGTGGGCTTGCAGCCACCCGCCAGGGCCAAACGTTTGCAGGGGC
TGCCCTGAAAGCCGGCGGTGCTGGCTCAAATGAGCATCTTCCTCGGGTTTATTTTTTTAAATAAATCCTCTCTCACCGCCTTTTGCTC
CCCCGACCCTCCCAAATCCCCGCCATTGGGGAGGGCGGCTAGGGCCAAGCCTGCAGCTGCCGCTGGTCGTACTCGGCGATGAGCCT
CTTGATGTGGGCCAGCTTGCTGTGCAGGTACTCGCAGCGGTGCTTCTCCTGGCTGTAGTTGGGGTTGGTCTTTTTGATTTTTCGATAT
TCCTGCAAAATCTGCCCTCGAGTAGTCTCATACTCCTCGGAGCCCTGGGAGAGCTGCCGGAGCTTGGCGTCNAGCTGGGTGAACCC
GCGCGTGATGCGCTCAATGTCGGCGTGCAG
(SEQ ID NO: 3406)

3407,AI652901,,20,618,CTGCACGCCGACATTGAGCG,,
3408,AI652901,,20,612,GCCGACATTGAGCGCATCAC,,
3409,AI652901,,20,606,ATTGAGCGCATCACGCGCGG,,
3410,AI652901,,20,600,CGCATCACGCGCGGGTTCAC,,
3411,AI652901,,20,594,ACGCGCGGGTTCACCCAGCT,,
3412,AI652901,,20,588,GGGTTCACCCAGCTNGACGC,,
3413,AI652901,,20,582,ACCCAGCTNGACGCCAAGCT,,
3414,AI652901,,20,576,CTNGACGCCAAGCTCCGGCA,,
3415,AI652901,,20,570,GCCAAGCTCCGGCAGCTCTC,,
3416,AI652901,,20,564,CTCCGGCAGCTCTCCCAGGG,,
3417,AI652901,,20,558,CAGCTCTCCCAGGGCTCCGA,,
3418,AI652901,,20,552,TCCCAGGGCTCCGAGGAGTA,,
3419,AI652901,,20,546,GGCTCCGAGGAGTATGAGAC,,
3420,AI652901,,20,540,GAGGAGTATGAGACTACTCG,,
3421,AI652901,,20,534,TATGAGACTACTCGAGGGCA,,
3422,AI652901,,20,528,ACTACTCGAGGGCAGATTTT,,
3423,AI652901,,20,522,CGAGGGCAGATTTTGCAGGA,,
3424,AI652901,,20,516,CAGATTTTGCAGGAATATCG,,
3425,AI652901,,20,510,TTGCAGGAATATCGAAAAAT,,
3426,AI652901,,20,504,GAATATCGAAAAATCAAAAA,,
3427,AI652901,,20,498,CGAAAAATCAAAAAGACCAA,,
3428,AI652901,,20,492,ATCAAAAAGACCAACCCCAA,,
3429,AI652901,,20,486,AAGACCAACCCCAACTACAG,,
3430,AI652901,,20,480,AACCCCAACTACAGCCAGGA,,
3431,AI652901,,20,474,AACTACAGCCAGGAGAAGCA,,
3432,AI652901,,20,468,AGCCAGGAGAAGCACCGCTG,,
3433,AI652901,,20,462,GAGAAGCACCGCTGCGAGTA,,
3434,AI652901,,20,456,CACCGCTGCGAGTACCTGCA,,
3435,AI652901,,20,450,TGCGAGTACCTGCACAGCAA,,
3436,AI652901,,20,444,TACCTGCACAGCAAGCTGGC,,
3437,AI652901,,20,438,CACAGCAAGCTGGCCCACAT,,
3438,AI652901,,20,432,AAGCTGGCCCACATCAAGAG,,
3439,AI652901,,20,426,GCCCACATCAAGAGGCTCAT,,
3440,AI652901,,20,420,ATCAAGAGGCTCATCGCCGA,,
3441,AI652901,,20,414,AGGCTCATCGCCGAGTACGA,,
3442,AI652901,,20,408,ATCGCCGAGTACGACCAGCG,,
3443,AI652901,,20,402,GAGTACGACCAGCGGCAGCT,,
3444,AI652901,,20,396,GACCAGCGGCAGCTGCAGGC,,
3445,AI652901,,20,390,CGGCAGCTGCAGGCTTGGCC,,
3446,AI652901,,20,384,CTGCAGGCTTGGCCCTAGCC,,
3447,AI652901,,20,378,GCTTGGCCCTAGCCGCCCTC,,
3448,AI652901,,20,372,CCCTAGCCGCCCTCCCCAAT,,
3449,AI652901,,20,366,CCGCCCTCCCCAATGGCGGG,,

3450,AI652901,,20,360,TCCCCAATGGCGGGGATTTG,,
3451,AI652901,,20,354,ATGGCGGGGATTTGGGAGGG,,
3452,AI652901,,20,348,GGGATTTGGGAGGGTCGGGG,,
3453,AI652901,,20,342,TGGGAGGGTCGGGGGAGCAA,,
3454,AI652901,,20,336,GGTCGGGGGAGCAAAAGGCG,,
3455,AI652901,,20,330,GGGAGCAAAAGGCGGTGAGA,,
3456,AI652901,,20,324,AAAAGGCGGTGAGAGAGGAT,,
3457,AI652901,,20,318,CGGTGAGAGAGGATTTATTT,,
3458,AI652901,,20,312,GAGAGGATTTATTTAAAAAA,,
3459,AI652901,,20,306,ATTTATTTAAAAAAATAAAC,,
3460,AI652901,,20,300,TTAAAAAAATAAACCCGAGG,,
3461,AI652901,,20,294,AAATAAACCCGAGGAAGATG,,
3462,AI652901,,20,288,ACCCGAGGAAGATGCTCATT,,
3463,AI652901,,20,282,GGAAGATGCTCATTTGAGCC,,
3464,AI652901,,20,276,TGCTCATTTGAGCCAGCACC,,
3465,AI652901,,20,270,TTTGAGCCAGCACCGCCGGC,,
3466,AI652901,,20,264,CCAGCACCGCCGGCTTTCAG,,
3467,AI652901,,20,258,CCGCCGGCTTTCAGGGCAGC,,
3468,AI652901,,20,252,GCTTTCAGGGCAGCCCCTGC,,
3469,AI652901,,20,246,AGGGCAGCCCCTGCAAACGT,,
3470,AI652901,,20,240,GCCCCTGCAAACGTTTGGCC,,
3471,AI652901,,20,234,GCAAACGTTTGGCCCTGGCG,,
3472,AI652901,,20,228,GTTTGGCCCTGGCGGGTGGC,,
3473,AI652901,,20,222,CCCTGGCGGGTGGCTGCAAG,,
3474,AI652901,,20,216,CGGGTGGCTGCAAGCCCACC,,
3475,AI652901,,20,210,GCTGCAAGCCCACCTCGGCC,,
3476,AI652901,,20,204,AGCCCACCTCGGCCCTCCCT,,
3477,AI652901,,20,198,CCTCGGCCCTCCCTGCGCTT,,
3478,AI652901,,20,192,CCCTCCCTGCGCTTCTTGAG,,
3479,AI652901,,20,186,CTGCGCTTCTTGAGCAGTCC,,
3480,AI652901,,20,180,TTCTTGAGCAGTCCCTGCTT,,
3481,AI652901,,20,174,AGCAGTCCCTGCTTATGATG,,
3482,AI652901,,20,168,CCCTGCTTATGATGGGCTCC,,
3483,AI652901,,20,162,TTATGATGGGCTCCCCAGGA,,
3484,AI652901,,20,156,TGGGCTCCCCAGGAAGCCCA,,
3485,AI652901,,20,150,CCCCAGGAAGCCCACTGCCT,,
3486,AI652901,,20,144,GAAGCCCACTGCCTCCTCCC,,
3487,AI652901,,20,138,CACTGCCTCCTCCCTGGCTG,,
3488,AI652901,,20,132,CTCCTCCCTGGCTGCAGCCT,,
3489,AI652901,,20,126,CCTGGCTGCAGCCTCCGGGG,,
3490,AI652901,,20,120,TGCAGCCTCCGGGGTTCAGC,,
3491,AI652901,,20,114,CTCCGGGGTTCAGCCTCCTG,,
3492,AI652901,,20,108,GGTTCAGCCTCCTGTCTCGC,,
3493,AI652901,,20,102,GCCTCCTGTCTCGCCAAAAA,,
3494,AI652901,,20,96,TGTCTCGCCAAAAAACTCCT,,
3495,AI652901,,20,90,GCCAAAAAACTCCTAGGCCC,,
3496,AI652901,,20,84,AAACTCCTAGGCCCTTGGGG,,
3497,AI652901,,20,78,CTAGGCCCTTGGGGTGGCGC,,
3498,AI652901,,20,72,CCTTGGGGTGGCGCGCCTGC,,
3499,AI652901,,20,66,GGTGGCGCGCCTGCCTTTTT,,
3500,AI652901,,20,60,GCGCCTGCCTTTTTTAGTTT,,
3501,AI652901,,20,54,GCCTTTTTTAGTTTTATACA,,
3502,AI652901,,20,48,TTTAGTTTTATACAAAGACA,,
3503,AI652901,,20,42,TTTATACAAAGACAGCCACT,,
3504,AI652901,,20,36,CAAAGACAGCCACTTTTAGC,,
3505,AI652901,,20,30,CAGCCACTTTTAGCTCCTGC,,
3506,AI652901,,20,24,CTTTTAGCTCCTGCTAAAAA,,
3507,AI652901,,20,18,GCTCCTGCTAAAAAAAAAAA,,
3508,AI652901,,20,12,GCTAAAAAAAAAAAAAAAAA,,
3509,AI652901,,20,6,AAAAAAAAAAAAAAAAAAAA,,
(GENBANK ACCESSION NO. AI652764)
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(SEQ ID NO: 3510)

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3512,AI652764,,20,486,GGAATTCCGAGTGTCCAGCA,,
3513,AI652764,,20,480,CCGAGTGTCCAGCACTGCCG,,
3514,AI652764,,20,474,GTCCAGCACTGCCGTATTGC,,
3515,AI652764,,20,468,CACTGCCGTATTGCCAGCAC,,
3516,AI652764,,20,462,CGTATTGCCAGCACAGACGG,,

3517,AI652764,,20,456,GCCAGCACAGACGGATTTTC,,
3518,AI652764,,20,450,ACAGACGGATTTTCTCTAAT,,
3519,AI652764,,20,444,GGATTTTCTCTAATCAGTGT,,
3520,AI652764,,20,438,TCTCTAATCAGTGTCCCTGG,,
3521,AI652764,,20,432,ATCAGTGTCCCTGGGGCAGG,,
3522,AI652764,,20,426,GTCCCTGGGGCAGGAGGATG,,
3523,AI652764,,20,420,GGGGCAGGAGGATGACCCAG,,
3524,AI652764,,20,414,GGAGGATGACCCAGTCACCT,,
3525,AI652764,,20,408,TGACCCAGTCACCTTTACTA,,
3526,AI652764,,20,402,AGTCACCTTTACTAGTCCTT,,
3527,AI652764,,20,396,CTTTACTAGTCCTTTGGAGA,,
3528,AI652764,,20,390,TAGTCCTTTGGAGACAATTT,,
3529,AI652764,,20,384,TTTGGAGACAATTTACCTGC,,
3530,AI652764,,20,378,GACAATTTACCTGCTCCTGC,,
3531,AI652764,,20,372,TTACCTGCTCCTGCTGCACA,,
3532,AI652764,,20,366,GCTCCTGCTGCACAGCTGCC,,
3533,AI652764,,20,360,GCTGCACAGCTGCCAGGAGT,,
3534,AI652764,,20,354,CAGCTGCCAGGAGTGCTCTG,,
3535,AI652764,,20,348,CCAGGAGTGCTCTGCCTGGA,,
3536,AI652764,,20,342,GTGCTCTGCCTGGAGTCTGC,,
3537,AI652764,,20,336,TGCCTGGAGTCTGCAGACCT,,
3538,AI652764,,20,330,GAGTCTGCAGACCTCAGAGA,,
3539,AI652764,,20,324,GCAGACCTCAGAGAGGTCCC,,
3540,AI652764,,20,318,CTCAGAGAGGTCCCAGCACT,,
3541,AI652764,,20,312,GAGGTCCCAGCACTGGCTGT,,
3542,AI652764,,20,306,CCAGCACTGGCTGTGGCCTT,,
3543,AI652764,,20,300,CTGGCTGTGGCCTTTCAGGT,,
3544,AI652764,,20,294,GTGGCCTTTCAGGTGTAGGC,,
3545,AI652764,,20,288,TTTCAGGTGTAGGCAGGTGG,,
3546,AI652764,,20,282,GTGTAGGCAGGTGGGCTCTG,,
3547,AI652764,,20,276,GCAGGTGGGCTCTGCTTCCC,,
3548,AI652764,,20,270,GGGCTCTGCTTCCCGATTCC,,
3549,AI652764,,20,264,TGCTTCCCGATTCCCTGTGA,,
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3552,AI652764,,20,246,GAGCGCCCACCCTCTCGAAA,,
3553,AI652764,,20,240,CCACCCTCTCGAAAGAATTT,,
3554,AI652764,,20,234,TCTCGAAAGAATTTTCTGCT,,
3555,AI652764,,20,228,AAGAATTTTCTGCTTGCCCT,,
3556,AI652764,,20,222,TTTCTGCTTGCCCTGTGACT,,
3557,AI652764,,20,216,CTTGCCCTGTGACTGTGCAG,,
3558,AI652764,,20,210,CTGTGACTGTGCAGACTCTG,,
3559,AI652764,,20,204,CTGTGCAGACTCTGGCTCGA,,
3560,AI652764,,20,198,AGACTCTGGCTCGAGCAACC,,
3561,AI652764,,20,192,TGGCTCGAGCAACCCGGGGA,,
3562,AI652764,,20,186,GAGCAACCCGGGGAACTTCA,,
3563,AI652764,,20,180,CCCGGGGAACTTCACCCTCA,,
3564,AI652764,,20,174,GAACTTCACCCTCAGGGGCC,,
3565,AI652764,,20,168,CACCCTCAGGGGCCTCCCAC,,
3566,AI652764,,20,162,CAGGGGCCTCCCACACCTTC,,
3567,AI652764,,20,156,CCTCCCACACCTTCTCCAGC,,
3568,AI652764,,20,150,ACACCTTCTCCAGCGAGGAG,,
3569,AI652764,,20,144,TCTCCAGCGAGGAGGTCTCA,,
3570,AI652764,,20,138,GCGAGGAGGTCTCAGTCCCA,,
3571,AI652764,,20,132,AGGTCTCAGTCCCAGCCTCG,,
3572,AI652764,,20,126,CAGTCCCAGCCTCGGGAGGG,,
3573,AI652764,,20,120,CAGCCTCGGGAGGGCACCTC,,
3574,AI652764,,20,114,CGGGAGGGCACCTCCTTTTC,,
3575,AI652764,,20,108,GGCACCTCCTTTTCTGTGCT,,
3576,AI652764,,20,102,TCCTTTTCTGTGCTTTCTTC,,
3577,AI652764,,20,96,TCTGTGCTTTCTTCCCTGAG,,
3578,AI652764,,20,90,CTTTCTTCCCTGAGGCATTC,,
3579,AI652764,,20,84,TCCCTGAGGCATTCTTCCTC,,
3580,AI652764,,20,78,AGGCATTCTTCCTCATCCCT,,
3581,AI652764,,20,72,TCTTCCTCATCCCTAGGGTG,,
3582,AI652764,,20,66,TCATCCCTAGGGTGTTGTGT,,
3583,AI652764,,20,60,CTAGGGTGTTGTGTAGAACT,,
3584,AI652764,,20,54,TGTTGTGTAGAACTCTTTTT,,
3585,AI652764,,20,48,GTAGAACTCTTTTTAAACTC,,
3586,AI652764,,20,42,CTCTTTTTAAACTCTATGCT,,
3587,AI652764,,20,36,TTAAACTCTATGCTCCGAGT,,
3588,AI652764,,20,30,TCTATGCTCCGAGTAGAGTT,,
3589,AI652764,,20,24,CTCCGAGTAGAGTTCATCTT,,
3590,AI652764,,20,18,GTAGAGTTCATCTTTATATT,,
3591,AI652764,,20,12,TTCATCTTTATATTAAACTT,,

3592,AI652764,,20,6,TTTATATTAAACTTCCCCTG,,
(GENBANK ACCESSION NO. AA489087)
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TTAGAAACCTAGTCAGAGGACAAGCTTCATACAGTATGTATGTACAGTTGGAACTGTTCAAGTATAGTTTCAGTGTAAAAAGTGCTA
CAGTAACAAACCACATTTAAGAAAGAGTTCTTAGTAGAGAAACAATAAGACAAAATACCAAACGTAGTACACAACAAATTTATGTC
TCAGCTACATGATCTAAAAGTTAAAGGTCCCATGAGCCCCATCCTGAACTTGGAAAGTGTAGCCTTCAGAGGTAGTTTCTGGTACAA
CGTTTTGATCTTCCTCTTCCTCTACAGAGAAATACTTCTCAATTAAGCTTAACGAAGCCTTATACACAGACTCATTTTCATGGTTTTGT
AGAGCTTCAATTTTGTCTAAGCCTCCACATTCTTCAATCCTTATACTAAGTGTCTCCGTTTCACCTAGTTTCTCAGCAGGCTCGAAGA
TATTTGAAATGGCATC
(SEQ ID NO: 3593)

3594,AA489087,,20,522,GATGCCATTTCAAATATCTT,,
3595,AA489087,,20,516,ATTTCAAATATCTTCGAGCC,,
3596,AA489087,,20,510,AATATCTTCGAGCCTGCTGA,,
3597,AA489087,,20,504,TTCGAGCCTGCTGAGAAACT,,
3598,AA489087,,20,498,CCTGCTGAGAAACTAGGTGA,,
3599,AA489087,,20,492,GAGAAACTAGGTGAAACGGA,,
3600,AA489087,,20,486,CTAGGTGAAACGGAGACACT,,
3601,AA489087,,20,480,GAAACGGAGACACTTAGTAT,,
3602,AA489087,,20,474,GAGACACTTAGTATAAGGAT,,
3603,AA489087,,20,468,CTTAGTATAAGGATTGAAGA,,
3604,AA489087,,20,462,ATAAGGATTGAAGAATGTGG,,
3605,AA489087,,20,456,ATTGAAGAATGTGGAGGCTT,,
3606,AA489087,,20,450,GAATGTGGAGGCTTAGACAA,,
3607,AA489087,,20,444,GGAGGCTTAGACAAAATTGA,,
3608,AA489087,,20,438,TTAGACAAAATTGAAGCTCT,,
3609,AA489087,,20,432,AAAATTGAAGCTCTACAAAA,,
3610,AA489087,,20,426,GAAGCTCTACAAAACCATGA,,
3611,AA489087,,20,420,CTACAAAACCATGAAAATGA,,
3612,AA489087,,20,414,AACCATGAAAATGAGTCTGT,,
3613,AA489087,,20,408,GAAAATGAGTCTGTGTATAA,,
3614,AA489087,,20,402,GAGTCTGTGTATAAGGCTTC,,
3615,AA489087,,20,396,GTGTATAAGGCTTCGTTAAG,,
3616,AA489087,,20,390,AAGGCTTCGTTAAGCTTAAT,,
3617,AA489087,,20,384,TCGTTAAGCTTAATTGAGAA,,
3618,AA489087,,20,378,AGCTTAATTGAGAAGTATTT,,
3619,AA489087,,20,372,ATTGAGAAGTATTTCTCTGT,,
3620,AA489087,,20,366,AAGTATTTCTCTGTAGAGGA,,
3621,AA489087,,20,360,TTCTCTGTAGAGGAAGAGGA,,
3622,AA489087,,20,354,GTAGAGGAAGAGGAAGATCA,,
3623,AA489087,,20,348,GAAGAGGAAGATCAAAACGT,,
3624,AA489087,,20,342,GAAGATCAAAACGTTGTACC,,
3625,AA489087,,20,336,CAAAACGTTGTACCAGAAAC,,
3626,AA489087,,20,330,GTTGTACCAGAAACTACCTC,,
3627,AA489087,,20,324,CCAGAAACTACCTCTGAAGG,,
3628,AA489087,,20,318,ACTACCTCTGAAGGCTACAC,,
3629,AA489087,,20,312,TCTGAAGGCTACACTTTCCA,,
3630,AA489087,,20,306,GGCTACACTTTCCAAGTTCA,,
3631,AA489087,,20,300,ACTTTCCAAGTTCAGGATGG,,
3632,AA489087,,20,294,CAAGTTCAGGATGGGGCTCA,,
3633,AA489087,,20,288,CAGGATGGGGCTCATGGGAC,,
3634,AA489087,,20,282,GGGGCTCATGGGACCTTTAA,,
3635,AA489087,,20,276,CATGGGACCTTTAACTTTTA,,
3636,AA489087,,20,270,ACCTTTAACTTTTAGATCAT,,
3637,AA489087,,20,264,AACTTTTAGATCATGTAGCT,,
3638,AA489087,,20,258,TAGATCATGTAGCTGAGACA,,
3639,AA489087,,20,252,ATGTAGCTGAGACATAAATT,,
3640,AA489087,,20,246,CTGAGACATAAATTTGTTGT,,
3641,AA489087,,20,240,CATAAATTTGTTGTGTACTA,,
3642,AA489087,,20,234,TTTGTTGTGTACTACGTTTG,,
3643,AA489087,,20,228,GTGTACTACGTTTGGTATTT,,
3644,AA489087,,20,222,TACGTTTGGTATTTTGTCTT,,
3645,AA489087,,20,216,TGGTATTTTGTCTTATTGTT,,
3646,AA489087,,20,210,TTTGTCTTATTGTTTCTCTA,,
3647,AA489087,,20,204,TTATTGTTTCTCTACTAAGA,,
3648,AA489087,,20,198,TTTCTCTACTAAGAACTCTT,,
3649,AA489087,,20,192,TACTAAGAACTCTTTCTTAA,,
3650,AA489087,,20,186,GAACTCTTTCTTAAATGTGG,,
3651,AA489087,,20,180,TTTCTTAAATGTGGTTTGTT,,
3652,AA489087,,20,174,AAATGTGGTTTGTTACTGTA,,
3653,AA489087,,20,168,GGTTTGTTACTGTAGCACTT,,
3654,AA489087,,20,162,TTACTGTAGCACTTTTTACA,,
3655,AA489087,,20,156,TAGCACTTTTTACACTGAAA,,
3656,AA489087,,20,150,TTTTTACACTGAAACTATAC,,
3657,AA489087,,20,144,CACTGAAACTATACTTGAAC,,

3658,AA489087,,20,138,AACTATACTTGAACAGTTCC,,
3659,AA489087,,20,132,ACTTGAACAGTTCCAACTGT,,
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3661,AA489087,,20,120,CCAACTGTACATACATACTG,,
3662,AA489087,,20,114,GTACATACATACTGTATGAA,,
3663,AA489087,,20,108,ACATACTGTATGAAGCTTGT,,
3664,AA489087,,20,102,TGTATGAAGCTTGTCCTCTG,,
3665,AA489087,,20,96,AAGCTTGTCCTCTGACTAGG,,
3666,AA489087,,20,90,GTCCTCTGACTAGGTTTCTA,,
3667,AA489087,,20,84,TGACTAGGTTTCTAATTTCT,,
3668,AA489087,,20,78,GGTTTCTAATTTCTATGTGG,,
3669,AA489087,,20,72,TAATTTCTATGTGGAATTTC,,
3670,AA489087,,20,66,CTATGTGGAATTTCCTATCT,,
3671,AA489087,,20,60,GGAATTTCCTATCTTGCAGC,,
3672,AA489087,,20,54,TCCTATCTTGCAGCATCCTG,,
3673,AA489087,,20,48,CTTGCAGCATCCTGTAAATA,,
3674,AA489087,,20,42,GCATCCTGTAAATAAACATT,,
3675,AA489087,,20,36,TGTAAATAAACATTCAAGTC,,
3676,AA489087,,20,30,TAAACATTCAAGTCCACCCT,,
3677,AA489087,,20,24,TTCAAGTCCACCCTTTTCTT,,
3678,AA489087,,20,18,TCCACCCTTTTCTTGACTTC,,
3679,AA489087,,20,12,CTTTTCTTGACTTCAAAAAA,,
3680,AA489087,,20,6,TTGACTTCAAAAAAAAAAAA,,
(GENBANK ACCESSION NO. AA281534)
GATTGTATAAATAATTTATTTCTGTTCACAGCATCATATATGCATTATAAAAGGCTATGGAAACAAAAGAGAAGGATGATGAGACA
GAGAATTACAGCAGTAGAAAGGAAAACAGAAACCAGGGCACACAGTTCCAACACCAGAACAGAGAATTTGGGAAGATAATTGCTC
TGAAACAGAACT
(SEQ ID NO: 3681)

3682,AA281534,,20,164,AGTTCTGTTTCAGAGCAATT,,
3683,AA281534,,20,158,GTTTCAGAGCAATTATCTTC,,
3684,AA281534,,20,152,GAGCAATTATCTTCCCAAAT,,
3685,AA281534,,20,146,TTATCTTCCCAAATTCTCTG,,
3686,AA281534,,20,140,TCCCAAATTCTCTGTTCTGG,,
3687,AA281534,,20,134,ATTCTCTGTTCTGGTGTTGG,,
3688,AA281534,,20,128,TGTTCTGGTGTTGGAACTGT,,
3689,AA281534,,20,122,GGTGTTGGAACTGTGTGCCC,,
3690,AA281534,,20,116,GGAACTGTGTGCCCTGGTTT,,
3691,AA281534,,20,110,GTGTGCCCTGGTTTCTGTTT,,
3692,AA281534,,20,104,CCTGGTTTCTGTTTTCCTTT,,
3693,AA281534,,20,98,TTCTGTTTTCCTTTCTACTG,,
3694,AA281534,,20,92,TTTCCTTTCTACTGCTGTAA,,
3695,AA281534,,20,86,TTCTACTGCTGTAATTCTCT,,
3696,AA281534,,20,80,TGCTGTAATTCTCTGTCTCA,,
3697,AA281534,,20,74,AATTCTCTGTCTCATCATCC,,
3698,AA281534,,20,68,CTGTCTCATCATCCTTCTCT,,
3699,AA281534,,20,62,CATCATCCTTCTCTTTTGTT,,
3700,AA281534,,20,56,CCTTCTCTTTTGTTTCCATA,,
3701,AA281534,,20,50,CTTTTGTTTCCATAGCCTTT,,
3702,AA281534,,20,44,TTTCCATAGCCTTTTATAAT,,
3703,AA281534,,20,38,TAGCCTTTTATAATGCATAT,,
3704,AA281534,,20,32,TTTATAATGCATATATGATG,,
3705,AA281534,,20,26,ATGCATATATGATGCTGTGA,,
3706,AA281534,,20,20,ATATGATGCTGTGAACAGAA,,
3707,AA281534,,20,14,TGCTGTGAACAGAAATAAAT,,
3708,AA281534,,20,8,GAACAGAAATAAATTATTTA,,
3709,AA281534,,20,2,AAATAAATTATTTATACAAT,,
(GENBANK ACCESSION NO. AI038433)
TTTTTTTTTTTTTTTGGTTTGGGTTAGTTTTAAATTACTTTTATTTTTGACATTTACAAGCATACAAGGAAGACACTATAATCTCTCTTG
CGTTGTCACCCATCTTTAAGTTTTCAACTCATGGACAATCTTTTGGCGTAAATAGGGGAGAGTTAGAGACTTAAATCCCACACATCA
TTTTTTTCCCCAGGGAATAATT
(SEQ ID NO: 3710)

3711,AI038433,,20,180,AATTATTCCCTGGGGAAAAA,,
3712,AI038433,,20,174,TCCCTGGGGAAAAAAATGAT,,
3713,AI038433,,20,168,GGGAAAAAAATGATGTGTGG,,
3714,AI038433,,20,162,AAAATGATGTGTGGGATTTA,,
3715,AI038433,,20,156,ATGTGTGGGATTTAAGTCTC,,
3716,AI038433,,20,150,GGGATTTAAGTCTCTAACTC,,
3717,AI038433,,20,144,TAAGTCTCTAACTCTCCCCT,,
3718,AI038433,,20,138,TCTAACTCTCCCCTATTTAC,,
3719,AI038433,,20,132,TCTCCCCTATTTACGCCAAA,,
3720,AI038433,,20,126,CTATTTACGCCAAAAGATTG,,
3721,AI038433,,20,120,ACGCCAAAAGATTGTCCATG,,
3722,AI038433,,20,114,AAAGATTGTCCATGAGTTGA,,

3723,AI038433,,20,108,TGTCCATGAGTTGAAAACTT,,
3724,AI038433,,20,102,TGAGTTGAAAACTTAAAGAT,,
3725,AI038433,,20,96,GAAAACTTAAAGATGGGTGA,,
3726,AI038433,,20,90,TTAAAGATGGGTGACAACGC,,
3727,AI038433,,20,84,ATGGGTGACAACGCAAGAGA,,
3728,AI038433,,20,78,GACAACGCAAGAGAGATTAT,,
3729,AI038433,,20,72,GCAAGAGAGATTATAGTGTC,,
3730,AI038433,,20,66,GAGATTATAGTGTCTTCCTT,,
3731,AI038433,,20,60,ATAGTGTCTTCCTTGTATGC,,
3732,AI038433,,20,54,TCTTCCTTGTATGCTTGTAA,,
3733,AI038433,,20,48,TTGTATGCTTGTAAATGTCA,,
3734,AI038433,,20,42,GCTTGTAAATGTCAAAAATA,,
3735,AI038433,,20,36,AAATGTCAAAAATAAAAGTA,,
3736,AI038433,,20,30,CAAAAATAAAAGTAATTTAA,,
3737,AI038433,,20,24,TAAAAGTAATTTAAAACTAA,,
3738,AI038433,,20,18,TAATTTAAAACTAACCCAAA,,
3739,AI038433,,20,12,AAAACTAACCCAAACCAAAA,,
3740,AI038433,,20,6,AACCCAAACCAAAAAAAAAA,,
(GENBANK ACCESSION NO. AI122689)
TTTTTTTTTTTTTTTTTTTTTTTTTTTTCTGTCAAAAAAACATTCTAACCTGATTTCAGTGACTTAGGTGTAAATGGCTTAGTTTCCAATA
TAAACTATCTTTCAGGGTTTTACAATAATAGTTCTTAGGGTATTACAAAATCAAGTACTCTACGGTACTCTTGGAAGAATTAACAGA
AATGAAGCTAGTCAACTTTTTTAAGAAACTGAGCAAAGAACAATTAGCAAATTGAGCAGCCTTTTAACCAGGATAGGTTCAGAGAG
GCTCCAGCAGAGCCACGTAATAGATTTATGGACAGAGAAGCTGGTCAACTTTTGATTCTCAAACCCAGGCTGGCCATCCTGCTTCCA
TCCAAAACCTGACAATGCTCATGGAACAATGAATATTAGGGTTGAGAAAATTTATTACCAATATCT
(SEQ ID NO: 3741)

3742,AI122689,,20,397,AGATATTGGTAATAAATTTT,,
3743,AI122689,,20,391,TGGTAATAAATTTTCTCAAC,,
3744,AI122689,,20,385,TAAATTTTCTCAACCCTAAT,,
3745,AI122689,,20,379,TTCTCAACCCTAATATTCAT,,
3746,AI122689,,20,373,ACCCTAATATTCATTGTTCC,,
3747,AI122689,,20,367,ATATTCATTGTTCCATGAGC,,
3748,AI122689,,20,361,ATTGTTCCATGAGCATTGTC,,
3749,AI122689,,20,355,CCATGAGCATTGTCAGGTTT,,
3750,AI122689,,20,349,GCATTGTCAGGTTTTGGATG,,
3751,AI122689,,20,343,TCAGGTTTTGGATGGAAGCA,,
3752,AI122689,,20,337,TTTGGATGGAAGCAGGATGG,,
3753,AI122689,,20,331,TGGAAGCAGGATGGCCAGCC,,
3754,AI122689,,20,325,CAGGATGGCCAGCCTGGGTT,,
3755,AI122689,,20,319,GGCCAGCCTGGGTTTGAGAA,,
3756,AI122689,,20,313,CCTGGGTTTGAGAATCAAAA,,
3757,AI122689,,20,307,TTTGAGAATCAAAAGTTGAC,,
3758,AI122689,,20,301,AATCAAAAGTTGACCAGCTT,,
3759,AI122689,,20,295,AAGTTGACCAGCTTCTCTGT,,
3760,AI122689,,20,289,ACCAGCTTCTCTGTCCATAA,,
3761,AI122689,,20,283,TTCTCTGTCCATAAATCTAT,,
3762,AI122689,,20,277,GTCCATAAATCTATTACGTG,,
3763,AI122689,,20,271,AAATCTATTACGTGGCTCTG,,
3764,AI122689,,20,265,ATTACGTGGCTCTGCTGGAG,,
3765,AI122689,,20,259,TGGCTCTGCTGGAGCCTCTC,,
3766,AI122689,,20,253,TGCTGGAGCCTCTCTGAACC,,
3767,AI122689,,20,247,AGCCTCTCTGAACCTATCCT,,
3768,AI122689,,20,241,TCTGAACCTATCCTGGTTAA,,
3769,AI122689,,20,235,CCTATCCTGGTTAAAAGGCT,,
3770,AI122689,,20,229,CTGGTTAAAAGGCTGCTCAA,,
3771,AI122689,,20,223,AAAAGGCTGCTCAATTTGCT,,
3772,AI122689,,20,217,CTGCTCAATTTGCTAATTGT,,
3773,AI122689,,20,211,AATTTGCTAATTGTTCTTTG,,
3774,AI122689,,20,205,CTAATTGTTCTTTGCTCAGT,,
3775,AI122689,,20,199,GTTCTTTGCTCAGTTTCTTA,,
3776,AI122689,,20,193,TGCTCAGTTTCTTAAAAAAG,,
3777,AI122689,,20,187,GTTTCTTAAAAAAGTTGACT,,
3778,AI122689,,20,181,TAAAAAAGTTGACTAGCTTC,,
3779,AI122689,,20,175,AGTTGACTAGCTTCATTTCT,,
3780,AI122689,,20,169,CTAGCTTCATTTCTGTTAAT,,
3781,AI122689,,20,163,TCATTTCTGTTAATTCTTCC,,
3782,AI122689,,20,157,CTGTTAATTCTTCCAAGAGT,,
3783,AI122689,,20,151,ATTCTTCCAAGAGTACCGTA,,
3784,AI122689,,20,145,CCAAGAGTACCGTAGAGTAC,,
3785,AI122689,,20,139,GTACCGTAGAGTACTTGATT,,
3786,AI122689,,20,133,TAGAGTACTTGATTTTGTAA,,
3787,AI122689,,20,127,ACTTGATTTTGTAATACCCT,,
3788,AI122689,,20,121,TTTTGTAATACCCTAAGAAC,,
3789,AI122689,,20,115,AATACCCTAAGAACTATTAT,,
3790,AI122689,,20,109,CTAAGAACTATTATTGTAAA,,

3791,AI122689,,20,103,ACTATTATTGTAAAACCCTG,,
3792,AI122689,,20,97,ATTGTAAAACCCTGAAAGAT,,
3793,AI122689,,20,91,AAACCCTGAAAGATAGTTTA,,
3794,AI122689,,20,85,TGAAAGATAGTTTATATTGG,,
3795,AI122689,,20,79,ATAGTTTATATTGGAAACTA,,
3796,AI122689,,20,73,TATATTGGAAACTAAGCCAT,,
3797,AI122689,,20,67,GGAAACTAAGCCATTTACAC,,
3798,AI122689,,20,61,TAAGCCATTTACACCTAAGT,,
3799,AI122689,,20,55,ATTTACACCTAAGTCACTGA,,
3800,AI122689,,20,49,ACCTAAGTCACTGAAATCAG,,
3801,AI122689,,20,43,GTCACTGAAATCAGGTTAGA,,
3802,AI122689,,20,37,GAAATCAGGTTAGAATGTTT,,
3803,AI122689,,20,31,AGGTTAGAATGTTTTTTTGA,,
3804,AI122689,,20,25,GAATGTTTTTTTGACAGAAA,,
3805,AI122689,,20,19,TTTTTTGACAGAAAAAAAAA,,
3806,AI122689,,20,13,GACAGAAAAAAAAAAAAAAA,,
3807,AI122689,,20,7,AAAAAAAAAAAAAAAAAAAA,,
3808,AI122689,,20,1,AAAAAAAAAAAAAAAAAAAA,,
(GENBANK ACCESSION NO. AI092623)
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GGCGGGGCCTTCCCCCGCTTCCCCCTCCACTCCCCCGCCCGCCCCCGGCCCCGGTTTTCCGATCTCGGCCCAGGGAAAAGCCTTGGT
CGCAAATCACCAGTTTGCATTTGCCCCTGGGGCGGGGGCGGCTTTCTGAAACCAGGCTGGGGCTGGGACTCCGCCACCTTCAGCTAA
GGGTACCGAGGTCAGTCCGGGAGTCGCGTCACCGGGACTCGAACCCGCCTTTTCGTTTTCCGAGGCCTAG
(SEQ ID NO: 3809)

3810,AI092623,,20,314,CTAGGCCTCGGAAAACGAAA,,
3811,AI092623,,20,308,CTCGGAAAACGAAAAGGCGG,,
3812,AI092623,,20,302,AAACGAAAAGGCGGGTTCGA,,
3813,AI092623,,20,296,AAAGGCGGGTTCGAGTCCCG,,
3814,AI092623,,20,290,GGGTTCGAGTCCCGGTGACG,,
3815,AI092623,,20,284,GAGTCCCGGTGACGCGACTC,,
3816,AI092623,,20,278,CGGTGACGCGACTCCCGGAC,,
3817,AI092623,,20,272,CGCGACTCCCGGACTGACCT,,
3818,AI092623,,20,266,TCCCGGACTGACCTCGGTAC,,
3819,AI092623,,20,260,ACTGACCTCGGTACCCTTAG,,
3820,AI092623,,20,254,CTCGGTACCCTTAGCTGAAG,,
3821,AI092623,,20,248,ACCCTTAGCTGAAGGTGGCG,,
3822,AI092623,,20,242,AGCTGAAGGTGGCGGAGTCC,,
3823,AI092623,,20,236,AGGTGGCGGAGTCCCAGCCC,,
3824,AI092623,,20,230,CGGAGTCCCAGCCCCAGCCT,,
3825,AI092623,,20,224,CCCAGCCCCAGCCTGGTTTC,,
3826,AI092623,,20,218,CCCAGCCTGGTTTCAGAAAG,,
3827,AI092623,,20,212,CTGGTTTCAGAAAGCCGCCC,,
3828,AI092623,,20,206,TCAGAAAGCCGCCCCCGCCC,,
3829,AI092623,,20,200,AGCCGCCCCCGCCCCAGGGG,,
3830,AI092623,,20,194,CCCCGCCCCAGGGGCAAATG,,
3831,AI092623,,20,188,CCCAGGGGCAAATGCAAACT,,
3832,AI092623,,20,182,GGCAAATGCAAACTGGTGAT,,
3833,AI092623,,20,176,TGCAAACTGGTGATTTGCGA,,
3834,AI092623,,20,170,CTGGTGATTTGCGACCAAGG,,
3835,AI092623,,20,164,ATTTGCGACCAAGGCTTTTC,,
3836,AI092623,,20,158,GACCAAGGCTTTTCCCTGGG,,
3837,AI092623,,20,152,GGCTTTTCCCTGGGCCGAGA,,
3838,AI092623,,20,146,TCCCTGGGCCGAGATCGGAA,,
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3840,AI092623,,20,134,GATCGGAAAACCGGGGCCGG,,
3841,AI092623,,20,128,AAAACCGGGGCCGGGGGCGG,,
3842,AI092623,,20,122,GGGGCCGGGGGCGGGCGGGG,,
3843,AI092623,,20,116,GGGGGCGGGCGGGGGAGTGG,,
3844,AI092623,,20,110,GGGCGGGGGAGTGGAGGGGG,,
3845,AI092623,,20,104,GGGAGTGGAGGGGGAAGCGG,,
3846,AI092623,,20,98,GGAGGGGGAAGCGGGGGAAG,,
3847,AI092623,,20,92,GGAAGCGGGGGAAGGCCCCG,,
3848,AI092623,,20,86,GGGGGAAGGCCCCGCCCCCC,,
3849,AI092623,,20,80,AGGCCCCGCCCCCCCGCCTC,,
3850,AI092623,,20,74,CGCCCCCCCGCCTCAGCTTC,,
3851,AI092623,,20,68,CCCGCCTCAGCTTCTGTCGA,,
3852,AI092623,,20,62,TCAGCTTCTGTCGAAGAAAA,,
3853,AI092623,,20,56,TCTGTCGAAGAAAATGGCCT,,
3854,AI092623,,20,50,GAAGAAAATGGCCTCCTGGG,,
3855,AI092623,,20,44,AATGGCCTCCTGGGGCCGAT,,
3856,AI092623,,20,38,CTCCTGGGGCCGATTTGGTC,,
3857,AI092623,,20,32,GGGCCGATTTGGTCTTTTCA,,
3858,AI092623,,20,26,ATTTGGTCTTTTCAAAAAAA,,
3859,AI092623,,20,20,TCTTTTCAAAAAAAAAAAAA,,

3860,AI092623,,20,14,CAAAAAAAAAAAAAAAAAAA,,
3861,AI092623,,20,8,AAAAAAAAAAAAAAAAAAAA,,
3862,AI092623,,20,2,AAAAAAAAAAAAAAAAAAAA,,
(GENBANK ACCESSION NO. AI095492)
TTTTTTTTTTTTTTTTTTTTTAAAAAAAATAAAATCTCTCCTTTACAGTAAAATGCCAACTAAAGGTGTAAAAAAAACTATGGAAATTA
TTTTAAAAAGCACCACTGGGCAACAATCAAAGGGCTTCAGGTAAAAGTCACCGATGGAGGTTAAGGGGGGTCTGCAAAAGTTTCAT
GAATAAAACAATGGTTGTGATGGTGAACTGAAGGGTGGCTAGATGGCTGGTATTGTTTCTGGTGTGATGGTGCTCCCAGAGAGACT
GAAATTTGAGTCAGTGGACTAGGAGAGGAAGATCCACCCTCAGTGGGGGTGGGCACCCTCCAACCGGCTGCCAGCGCGGCTAGAAC
AAGGCAGGCAGAAAAAAGTAGGTAAGCTAGCTTGCTGAGTCTTCTGGCTTTCGTCTTTACCCCATGCTGGATGCTTCTGTCCATTCC
TCCTGCCCTTGGACATCACACTC
(SEQ ID NO: 3863)

3864,AI095492,,20,437,GAGTGTGATGTCCAAGGGCA,,
3865,AI095492,,20,431,GATGTCCAAGGGCAGGAGGA,,
3866,AI095492,,20,425,CAAGGGCAGGAGGAATGGAC,,
3867,AI095492,,20,419,CAGGAGGAATGGACAGAAGC,,
3868,AI095492,,20,413,GAATGGACAGAAGCATCCAG,,
3869,AI095492,,20,407,ACAGAAGCATCCAGCATGGG,,
3870,AI095492,,20,401,GCATCCAGCATGGGGTAAAG,,
3871,AI095492,,20,395,AGCATGGGGTAAAGACGAAA,,
3872,AI095492,,20,389,GGGTAAAGACGAAAGCCAGA,,
3873,AI095492,,20,383,AGACGAAAGCCAGAAGACTC,,
3874,AI095492,,20,377,AAGCCAGAAGACTCAGCAAG,,
3875,AI095492,,20,371,GAAGACTCAGCAAGCTAGCT,,
3876,AI095492,,20,365,TCAGCAAGCTAGCTTACCTA,,
3877,AI095492,,20,359,AGCTAGCTTACCTACTTTTT,,
3878,AI095492,,20,353,CTTACCTACTTTTTTCTGCC,,
3879,AI095492,,20,347,TACTTTTTTCTGCCTGCCTT,,
3880,AI095492,,20,341,TTTCTGCCTGCCTTGTTCTA,,
3881,AI095492,,20,335,CCTGCCTTGTTCTAGCCGCG,,
3882,AI095492,,20,329,TTGTTCTAGCCGCGCTGGCA,,
3883,AI095492,,20,323,TAGCCGCGCTGGCAGCCGGT,,
3884,AI095492,,20,317,CGCTGGCAGCCGGTTGGAGG,,
3885,AI095492,,20,311,CAGCCGGTTGGAGGGTGCCC,,
3886,AI095492,,20,305,GTTGGAGGGTGCCCACCCCC,,
3887,AI095492,,20,299,GGGTGCCCACCCCCACTGAG,,
3888,AI095492,,20,293,CCACCCCCACTGAGGGTGGA,,
3889,AI095492,,20,287,CCACTGAGGGTGGATCTTCC,,
3890,AI095492,,20,281,AGGGTGGATCTTCCTCTCCT,,
3891,AI095492,,20,275,GATCTTCCTCTCCTAGTCCA,,
3892,AI095492,,20,269,CCTCTCCTAGTCCACTGACT,,
3893,AI095492,,20,263,CTAGTCCACTGACTCAAATT,,
3894,AI095492,,20,257,CACTGACTCAAATTTCAGTC,,
3895,AI095492,,20,251,CTCAAATTTCAGTCTCTCTG,,
3896,AI095492,,20,245,TTTCAGTCTCTCTGGGAGCA,,
3897,AI095492,,20,239,TCTCTCTGGGAGCACCATCA,,
3898,AI095492,,20,233,TGGGAGCACCATCACACCAG,,
3899,AI095492,,20,227,CACCATCACACCAGAAACAA,,
3900,AI095492,,20,221,CACACCAGAAACAATACCAG,,
3901,AI095492,,20,215,AGAAACAATACCAGCCATCT,,
3902,AI095492,,20,209,AATACCAGCCATCTAGCCAC,,
3903,AI095492,,20,203,AGCCATCTAGCCACCCTTCA,,
3904,AI095492,,20,197,CTAGCCACCCTTCAGTTCAC,,
3905,AI095492,,20,191,ACCCTTCAGTTCACCATCAC,,
3906,AI095492,,20,185,CAGTTCACCATCACAACCAT,,
3907,AI095492,,20,179,ACCATCACAACCATTGTTTT,,
3908,AI095492,,20,173,ACAACCATTGTTTTATTCAT,,
3909,AI095492,,20,167,ATTGTTTTATTCATGAAACT,,
3910,AI095492,,20,161,TTATTCATGAAACTTTTGCA,,
3911,AI095492,,20,155,ATGAAACTTTTGCAGACCCC,,
3912,AI095492,,20,149,CTTTTGCAGACCCCCCTTAA,,
3913,AI095492,,20,143,CAGACCCCCCTTAACCTCCA,,
3914,AI095492,,20,137,CCCCTTAACCTCCATCGGTG,,
3915,AI095492,,20,131,AACCTCCATCGGTGACTTTT,,
3916,AI095492,,20,125,CATCGGTGACTTTTACCTGA,,
3917,AI095492,,20,119,TGACTTTTACCTGAAGCCCT,,
3918,AI095492,,20,113,TTACCTGAAGCCCTTTGATT,,
3919,AI095492,,20,107,GAAGCCCTTTGATTGTTGCC,,
3920,AI095492,,20,101,CTTTGATTGTTGCCCAGTGG,,
3921,AI095492,,20,95,TTGTTGCCCAGTGGTGCTTT,,
3922,AI095492,,20,89,CCCAGTGGTGCTTTTTAAAA,,
3923,AI095492,,20,83,GGTGCTTTTTAAAATAATTT,,
3924,AI095492,,20,77,TTTTAAAATAATTTCCATAG,,
3925,AI095492,,20,71,AATAATTTCCATAGTTTTTT,,
3926,AI095492,,20,65,TTCCATAGTTTTTTTTACAC,,

3927,AI095492,,20,59,AGTTTTTTTTACACCTTTAG,,
3928,AI095492,,20,53,TTTTACACCTTTAGTTGGCA,,
3929,AI095492,,20,47,ACCTTTAGTTGGCATTTTAC,,
3930,AI095492,,20,41,AGTTGGCATTTTACTGTAAA,,
3931,AI095492,,20,35,CATTTTACTGTAAAGGAGAG,,
3932,AI095492,,20,29,ACTGTAAAGGAGAGATTTTA,,
3933,AI095492,,20,23,AAGGAGAGATTTTATTTTTT,,
3934,AI095492,,20,17,AGATTTTATTTTTTTAAAAA,,
3935,AI095492,,20,11,TATTTTTTTAAAAAAAAAAA,,
3936,AI095492,,20,5,TTTAAAAAAAAAAAAAAAAA,,
(GENBANK ACCESSION NO. AI138216)
TGGTTTTGTGAACTGCTTTTATTTCATTTGGTTTTATATTGGAATCAATTCACCATGACATTTAATAGCCTTCAAAACAGGATTTTTGT
AATGGCTGCGTGTTAGTCCATCATATTAACATTTATTTATACATTCCTCTATTTTGGACGTAACAGATACTATTTCGGAAGATTTGTTT
TTTATAATCTCTCTAAGATGAATATTTTTCTCCTAGAATGTAAACACTATAAAGGCAGAGAGTTTGTCTTACTGATCACAATACCCTC
AACCCCCCAGAAGTGCCTGACACATAGTTGGAGCTCAACAGGGATGGATGGATGGATGGATGGATG
(SEQ ID NO: 3937)

3938,AI138216,,20,313,CATCCATCCATCCATCCATC,,
3939,AI138216,,20,307,TCCATCCATCCATCCATCCC,,
3940,AI138216,,20,301,CATCCATCCATCCCTGTTGA,,
3941,AI138216,,20,295,TCCATCCCTGTTGAGCTCCA,,
3942,AI138216,,20,289,CCTGTTGAGCTCCAACTATG,,
3943,AI138216,,20,283,GAGCTCCAACTATGTGTCAG,,
3944,AI138216,,20,277,CAACTATGTGTCAGGCACTT,,
3945,AI138216,,20,271,TGTGTCAGGCACTTCTGGGG,,
3946,AI138216,,20,265,AGGCACTTCTGGGGGGTTGA,,
3947,AI138216,,20,259,TTCTGGGGGGTTGAGGGTAT,,
3948,AI138216,,20,253,GGGGTTGAGGGTATTGTGAT,,
3949,AI138216,,20,247,GAGGGTATTGTGATCAGTAA,,
3950,AI138216,,20,241,ATTGTGATCAGTAAGACAAA,,
3951,AI138216,,20,235,ATCAGTAAGACAAACTCTCT,,
3952,AI138216,,20,229,AAGACAAACTCTCTGCCTTT,,
3953,AI138216,,20,223,AACTCTCTGCCTTTATAGTG,,
3954,AI138216,,20,217,CTGCCTTTATAGTGTTTACA,,
3955,AI138216,,20,211,TTATAGTGTTTACATTCTAG,,
3956,AI138216,,20,205,TGTTTACATTCTAGGAGAAA,,
3957,AI138216,,20,199,CATTCTAGGAGAAAAATATT,,
3958,AI138216,,20,193,AGGAGAAAAATATTCATCTT,,
3959,AI138216,,20,187,AAAATATTCATCTTAGAGAG,,
3960,AI138216,,20,181,TTCATCTTAGAGAGATTATA,,
3961,AI138216,,20,175,TTAGAGAGATTATAAAAAAC,,
3962,AI138216,,20,169,AGATTATAAAAAACAAATCT,,
3963,AI138216,,20,163,TAAAAAACAAATCTTCCGAA,,
3964,AI138216,,20,157,ACAAATCTTCCGAAATAGTA,,
3965,AI138216,,20,151,CTTCCGAAATAGTATCTGTT,,
3966,AI138216,,20,145,AAATAGTATCTGTTACGTCC,,
3967,AI138216,,20,139,TATCTGTTACGTCCAAAATA,,
3968,AI138216,,20,133,TTACGTCCAAAATAGAGGAA,,
3969,AI138216,,20,127,CCAAAATAGAGGAATGTATA,,
3970,AI138216,,20,121,TAGAGGAATGTATAAATAAA,,
3971,AI138216,,20,115,AATGTATAAATAAATGTTAA,,
3972,AI138216,,20,109,TAAATAAATGTTAATATGAT,,
3973,AI138216,,20,103,AATGTTAATATGATGGACTA,,
3974,AI138216,,20,97,AATATGATGGACTAACACGC,,
3975,AI138216,,20,91,ATGGACTAACACGCAGCCAT,,
3976,AI138216,,20,85,TAACACGCAGCCATTACAAA,,
3977,AI138216,,20,79,GCAGCCATTACAAAAATCCT,,
3978,AI138216,,20,73,ATTACAAAAATCCTGTTTTG,,
3979,AI138216,,20,67,AAAATCCTGTTTTGAAGGCT,,
3980,AI138216,,20,61,CTGTTTTGAAGGCTATTAAA,,
3981,AI138216,,20,55,TGAAGGCTATTAAATGTCAT,,
3982,AI138216,,20,49,CTATTAAATGTCATGGTGAA,,
3983,AI138216,,20,43,AATGTCATGGTGAATTGATT,,
3984,AI138216,,20,37,ATGGTGAATTGATTCCAATA,,
3985,AI138216,,20,31,AATTGATTCCAATATAAAAC,,
3986,AI138216,,20,25,TTCCAATATAAAACCAAATG,,
3987,AI138216,,20,19,TATAAAACCAAATGAAATAA,,
3988,AI138216,,20,13,ACCAAATGAAATAAAAGCAG,,
3989,AI138216,,20,7,TGAAATAAAAGCAGTTCACA,,
3990,AI138216,,20,1,AAAAGCAGTTCACAAAACCA,,
(GENBANK ACCESSION NO. AI128305)
TTTTTTTTTTTTTTTTTTTTTTTTTTTTTTTTTTTTTTTTTAAATTCAATGACCATTTTATTGAGCACTAAGGATTTCATTATAACAAAGTCT
GCATTTGACATGTCCATATAAACCAAAATAATAAACTTGGGTTAAATAAAAGTACCTTGACACAGGAGGATCACCTGAGTAGGGGA
GTTCAAGACCAGCCCAAGCAACACAGCAAGATGACCATTTCAAAAAACAAAACAAAACAAAAACCCTGCAGGTATTTTTATCTAAC

TTTTACATATCCTTTGTTTTGGAATGCTCACTTGCTTAATTGACTAAATAGGTGGAAGTCAAATCTTCTCTAGCCATTGATGTGAACC AATGAAACTATATTCTCAAGGAGTATTTTGTTAGCTTGGTACCAGCTACCTGACAAATTTGAAAATACAGCT (SEQ ID NO: 3991)

3992,AI128305,,20,404,AGCTGTATTTTCAAATTTGT,,
3993,AI128305,,20,398,ATTTTCAAATTTGTCAGGTA,,
3994,AI128305,,20,392,AAATTTGTCAGGTAGCTGGT,,
3995,AI128305,,20,386,GTCAGGTAGCTGGTACCAAG,,
3996,AI128305,,20,380,TAGCTGGTACCAAGCTAACA,,
3997,AI128305,,20,374,GTACCAAGCTAACAAAATAC,,
3998,AI128305,,20,368,AGCTAACAAAATACTCCTTG,,
3999,AI128305,,20,362,CAAAATACTCCTTGAGAATA,,
4000,AI128305,,20,356,ACTCCTTGAGAATATAGTTT,,
4001,AI128305,,20,350,TGAGAATATAGTTTCATTGG,,
4002,AI128305,,20,344,TATAGTTTCATTGGTTCACA,,
4003,AI128305,,20,338,TTCATTGGTTCACATCAATG,,
4004,AI128305,,20,332,GGTTCACATCAATGGCTAGA,,
4005,AI128305,,20,326,CATCAATGGCTAGAGAAGAT,,
4006,AI128305,,20,320,TGGCTAGAGAAGATTTGACT,,
4007,AI128305,,20,314,GAGAAGATTTGACTTCCACC,,
4008,AI128305,,20,308,ATTTGACTTCCACCTATTTA,,
4009,AI128305,,20,302,CTTCCACCTATTTAGTCAAT,,
4010,AI128305,,20,296,CCTATTTAGTCAATTAAGCA,,
4011,AI128305,,20,290,TAGTCAATTAAGCAAGTGAG,,
4012,AI128305,,20,284,ATTAAGCAAGTGAGCATTCC,,
4013,AI128305,,20,278,CAAGTGAGCATTCCAAAACA,,
4014,AI128305,,20,272,AGCATTCCAAAACAAAGGAT,,
4015,AI128305,,20,266,CCAAAACAAAGGATATGTAA,,
4016,AI128305,,20,260,CAAAGGATATGTAAAAGTTA,,
4017,AI128305,,20,254,ATATGTAAAAGTTAGATAAA,,
4018,AI128305,,20,248,AAAAGTTAGATAAAAATACC,,
4019,AI128305,,20,242,TAGATAAAAATACCTGCAGG,,
4020,AI128305,,20,236,AAAATACCTGCAGGGTTTTT,,
4021,AI128305,,20,230,CCTGCAGGGTTTTTGTTTTG,,
4022,AI128305,,20,224,GGGTTTTTGTTTTGTTTTGT,,
4023,AI128305,,20,218,TTGTTTTGTTTTGTTTTTTG,,
4024,AI128305,,20,212,TGTTTTGTTTTTTGAAATGG,,
4025,AI128305,,20,206,GTTTTTTGAAATGGTCATCT,,
4026,AI128305,,20,200,TGAAATGGTCATCTTGCTGT,,
4027,AI128305,,20,194,GGTCATCTTGCTGTGTTGCT,,
4028,AI128305,,20,188,CTTGCTGTGTTGCTTGGGCT,,
4029,AI128305,,20,182,GTGTTGCTTGGGCTGGTCTT,,
4030,AI128305,,20,176,CTTGGGCTGGTCTTGAACTC,,
4031,AI128305,,20,170,CTGGTCTTGAACTCCCCTAC,,
4032,AI128305,,20,164,TTGAACTCCCCTACTCAGGT,,
4033,AI128305,,20,158,TCCCCTACTCAGGTGATCCT,,
4034,AI128305,,20,152,ACTCAGGTGATCCTCCTGTG,,
4035,AI128305,,20,146,GTGATCCTCCTGTGTCAAGG,,
4036,AI128305,,20,140,CTCCTGTGTCAAGGTACTTT,,
4037,AI128305,,20,134,TGTCAAGGTACTTTTATTTA,,
4038,AI128305,,20,128,GGTACTTTTATTTAACCCAA,,
4039,AI128305,,20,122,TTTATTTAACCCAAGTTTAT,,
4040,AI128305,,20,116,TAACCCAAGTTTATTATTTT,,
4041,AI128305,,20,110,AAGTTTATTATTTTGGTTTA,,
4042,AI128305,,20,104,ATTATTTTGGTTTATATGGA,,
4043,AI128305,,20,98,TTGGTTTATATGGACATGTC,,
4044,AI128305,,20,92,TATATGGACATGTCAAATGC,,
4045,AI128305,,20,86,GACATGTCAAATGCAGACTT,,
4046,AI128305,,20,80,TCAAATGCAGACTTTGTTAT,,
4047,AI128305,,20,74,GCAGACTTTGTTATAATGAA,,
4048,AI128305,,20,68,TTTGTTATAATGAAATCCTT,,
4049,AI128305,,20,62,ATAATGAAATCCTTAGTGCT,,
4050,AI128305,,20,56,AAATCCTTAGTGCTCAATAA,,
4051,AI128305,,20,50,TTAGTGCTCAATAAAATGGT,,
4052,AI128305,,20,44,CTCAATAAAATGGTCATTGA,,
4053,AI128305,,20,38,AAAATGGTCATTGAATTTAA,,
4054,AI128305,,20,32,GTCATTGAATTTAAAAAAAA,,
4055,AI128305,,20,26,GAATTTAAAAAAAAAAAAAA,,
4056,AI128305,,20,20,AAAAAAAAAAAAAAAAAAAA,,
4057,AI128305,,20,14,AAAAAAAAAAAAAAAAAAAA,,
4058,AI128305,,20,8,AAAAAAAAAAAAAAAAAAAA,,
4059,AI128305,,20,2,AAAAAAAAAAAAAAAAAAAA,,
(GENBANK ACCESSION NO. AI125228)
TTTTTTTTTTTTTTTTTTTTTTTTTTTTAAGTTTCTATAATTTCATTTTATTGGAATGAACTCCAAAAAAAGCTAAAAGCAAAAAGGTTTCT CAGCCATACTTCATTTCCACTCTGATGTTTTCCAGTCATAATTACTGCTTAAATATTCTTTTATACCATGCTAGATTTTTCCAATTGGT

ATGGCAGCCTATTGCTGAAAGCCACCTTAAAACACTTTTAACTCAACATCCTTTTTTACAAAGGAGCAAATTGATGTTATGATTTCAT
CTAATACTATAACAATAAAAAAGGAAATAAGTCCCAAATGAATATTAAAATAACCAAAAAATTGTTATGTAATTAAAATCAGGAAG
TTTGGTAAGTTAGATAGTAGGAAATAAAAAATTATTTCAG
(SEQ ID NO: 4060)

4061,AI125228,,20,374,CTGAAATAATTTTTTATTTC,,
4062,AI125228,,20,368,TAATTTTTTATTTCCTACTA,,
4063,AI125228,,20,362,TTTATTTCCTACTATCTAAC,,
4064,AI125228,,20,356,TCCTACTATCTAACTTACCA,,
4065,AI125228,,20,350,TATCTAACTTACCAAACTTC,,
4066,AI125228,,20,344,ACTTACCAAACTTCCTGATT,,
4067,AI125228,,20,338,CAAACTTCCTGATTTTAATT,,
4068,AI125228,,20,332,TCCTGATTTTAATTACATAA,,
4069,AI125228,,20,326,TTTTAATTACATAACAATTT,,
4070,AI125228,,20,320,TTACATAACAATTTTTTGGT,,
4071,AI125228,,20,314,AACAATTTTTTGGTTATTTT,,
4072,AI125228,,20,308,TTTTTGGTTATTTTAATATT,,
4073,AI125228,,20,302,GTTATTTTAATATTCATTTG,,
4074,AI125228,,20,296,TTAATATTCATTTGGGACTT,,
4075,AI125228,,20,290,TTCATTTGGGACTTATTTCC,,
4076,AI125228,,20,284,TGGGACTTATTTCCTTTTTT,,
4077,AI125228,,20,278,TTATTTCCTTTTTTATTGTT,,
4078,AI125228,,20,272,CCTTTTTTATTGTTATAGTA,,
4079,AI125228,,20,266,TTATTGTTATAGTATTAGAT,,
4080,AI125228,,20,260,TTATAGTATTAGATGAAATC,,
4081,AI125228,,20,254,TATTAGATGAAATCATAACA,,
4082,AI125228,,20,248,ATGAAATCATAACATCAATT,,
4083,AI125228,,20,242,TCATAACATCAATTTGCTCC,,
4084,AI125228,,20,236,CATCAATTTGCTCCTTTGTA,,
4085,AI125228,,20,230,TTTGCTCCTTTGTAAAAAAG,,
4086,AI125228,,20,224,CCTTTGTAAAAAAGGATGTT,,
4087,AI125228,,20,218,TAAAAAAGGATGTTGAGTTA,,
4088,AI125228,,20,212,AGGATGTTGAGTTAAAAGTG,,
4089,AI125228,,20,206,TTGAGTTAAAAGTGTTTTAA,,
4090,AI125228,,20,200,TAAAAGTGTTTTAAGGTGGC,,
4091,AI125228,,20,194,TGTTTTAAGGTGGCTTTCAG,,
4092,AI125228,,20,188,AAGGTGGCTTTCAGCAATAG,,
4093,AI125228,,20,182,GCTTTCAGCAATAGGCTGCC,,
4094,AI125228,,20,176,AGCAATAGGCTGCCATACCA,,
4095,AI125228,,20,170,AGGCTGCCATACCAATTGGA,,
4096,AI125228,,20,164,CCATACCAATTGGAAAAATC,,
4097,AI125228,,20,158,CAATTGGAAAAATCTAGCAT,,
4098,AI125228,,20,152,GAAAAATCTAGCATGGTATA,,
4099,AI125228,,20,146,TCTAGCATGGTATAAAAGAA,,
4100,AI125228,,20,140,ATGGTATAAAAGAATATTTA,,
4101,AI125228,,20,134,TAAAAGAATATTTAAGCAGT,,
4102,AI125228,,20,128,AATATTTAAGCAGTAATTAT,,
4103,AI125228,,20,122,TAAGCAGTAATTATGACTGG,,
4104,AI125228,,20,116,GTAATTATGACTGGAAAACA,,
4105,AI125228,,20,110,ATGACTGGAAAACATCAGAG,,
4106,AI125228,,20,104,GGAAAACATCAGAGTGGAAA,,
4107,AI125228,,20,98,CATCAGAGTGGAAATGAAGT,,
4108,AI125228,,20,92,AGTGGAAATGAAGTATGGCT,,
4109,AI125228,,20,86,AATGAAGTATGGCTGAGAAA,,
4110,AI125228,,20,80,GTATGGCTGAGAAACCTTTT,,
4111,AI125228,,20,74,CTGAGAAACCTTTTTGCTTT,,
4112,AI125228,,20,68,AACCTTTTTGCTTTTAGCTT,,
4113,AI125228,,20,62,TTTGCTTTTAGCTTTTTTTG,,
4114,AI125228,,20,56,TTTAGCTTTTTTTGGAGTTC,,
4115,AI125228,,20,50,TTTTTTTGGAGTTCATTCCA,,
4116,AI125228,,20,44,TGGAGTTCATTCCAATAAAA,,
4117,AI125228,,20,38,TCATTCCAATAAAATGAAAT,,
4118,AI125228,,20,32,CAATAAAATGAAATTATAGA,,
4119,AI125228,,20,26,AATGAAATTATAGAAACTTA,,
4120,AI125228,,20,20,ATTATAGAAACTTAAAAAAA,,
4121,AI125228,,20,14,GAAACTTAAAAAAAAAAAAA,,
4122,AI125228,,20,8,TAAAAAAAAAAAAAAAAAAA,,
4123,AI125228,,20,2,AAAAAAAAAAAAAAAAAAAA,,
(GENBANK ACCESSION NO. AI041482)
TTTTTTTTTTTTTTTTTTTTTTTTTTTTTTGACAGTGCTCTCATAACATTTTAATAGTGCTAAAAAATTCCAATCACCTAATGACATAGCCA
GTGTAACATTGTAAAGCACATTACTCACATGTCTGTCATTTAAACCTGCTGCACTGCCAGTCATGTAACAGTAGTAAATATGGTTAT
GTACAGTAGATTATATACAGTACATAATAATGAATAGTAATAAGTGACCACATTACTGGTTTATATATTTTTATACTATTTATTGTTA
TTTTAGAATGTATTCCTTCTACTTACTAAAAAAGAAAAGTTAACTCAAAAACAAGCCTCAAGCAGATGCTTCAGAAGACATTCTAGA
AGTCATTGT
(SEQ ID NO: 4124)

4125,AI041482,,20,342,ACAATGACTTCTAGAATGTC,,
4126,AI041482,,20,336,ACTTCTAGAATGTCTTCTGA,,
4127,AI041482,,20,330,AGAATGTCTTCTGAAGCATC,,
4128,AI041482,,20,324,TCTTCTGAAGCATCTGCTTG,,
4129,AI041482,,20,318,GAAGCATCTGCTTGAGGCTT,,
4130,AI041482,,20,312,TCTGCTTGAGGCTTGTTTTT,,
4131,AI041482,,20,306,TGAGGCTTGTTTTTGAGTTA,,
4132,AI041482,,20,300,TTGTTTTTGAGTTAACTTTT,,
4133,AI041482,,20,294,TTGAGTTAACTTTTCTTTTT,,
4134,AI041482,,20,288,TAACTTTTCTTTTTTAGTAA,,
4135,AI041482,,20,282,TTCTTTTTTAGTAAGTAGAA,,
4136,AI041482,,20,276,TTTAGTAAGTAGAAGGAATA,,
4137,AI041482,,20,270,AAGTAGAAGGAATACATTCT,,
4138,AI041482,,20,264,AAGGAATACATTCTAAAATA,,
4139,AI041482,,20,258,TACATTCTAAAATAACAATA,,
4140,AI041482,,20,252,CTAAAATAACAATAAATAGT,,
4141,AI041482,,20,246,TAACAATAAATAGTATAAAA,,
4142,AI041482,,20,240,TAAATAGTATAAAAATATAT,,
4143,AI041482,,20,234,GTATAAAAATATATAAACCA,,
4144,AI041482,,20,228,AAATATATAAACCAGTAATG,,
4145,AI041482,,20,222,ATAAACCAGTAATGTGGTCA,,
4146,AI041482,,20,216,CAGTAATGTGGTCACTTATT,,
4147,AI041482,,20,210,TGTGGTCACTTATTACTATT,,
4148,AI041482,,20,204,CACTTATTACTATTCATTAT,,
4149,AI041482,,20,198,TTACTATTCATTATTATGTA,,
4150,AI041482,,20,192,TTCATTATTATGTACTGTAT,,
4151,AI041482,,20,186,ATTATGTACTGTATATAATC,,
4152,AI041482,,20,180,TACTGTATATAATCTACTGT,,
4153,AI041482,,20,174,ATATAATCTACTGTACATAA,,
4154,AI041482,,20,168,TCTACTGTACATAACCATAT,,
4155,AI041482,,20,162,GTACATAACCATATTTACTA,,
4156,AI041482,,20,156,AACCATATTTACTACTGTTA,,
4157,AI041482,,20,150,ATTTACTACTGTTACATGAC,,
4158,AI041482,,20,144,TACTGTTACATGACTGGCAG,,
4159,AI041482,,20,138,TACATGACTGGCAGTGCAGC,,
4160,AI041482,,20,132,ACTGGCAGTGCAGCAGGTTT,,
4161,AI041482,,20,126,AGTGCAGCAGGTTTAAATGA,,
4162,AI041482,,20,120,GCAGGTTTAAATGACAGACA,,
4163,AI041482,,20,114,TTAAATGACAGACATGTGAG,,
4164,AI041482,,20,108,GACAGACATGTGAGTAATGT,,
4165,AI041482,,20,102,CATGTGAGTAATGTGCTTTA,,
4166,AI041482,,20,96,AGTAATGTGCTTTACAATGT,,
4167,AI041482,,20,90,GTGCTTTACAATGTTACACT,,
4168,AI041482,,20,84,TACAATGTTACACTGGCTAT,,
4169,AI041482,,20,78,GTTACACTGGCTATGTCATT,,
4170,AI041482,,20,72,CTGGCTATGTCATTAGGTGA,,
4171,AI041482,,20,66,ATGTCATTAGGTGATTGGAA,,
4172,AI041482,,20,60,TTAGGTGATTGGAATTTTTT,,
4173,AI041482,,20,54,GATTGGAATTTTTTAGCACT,,
4174,AI041482,,20,48,AATTTTTTAGCACTATTAAA,,
4175,AI041482,,20,42,TTAGCACTATTAAAATGTTA,,
4176,AI041482,,20,36,CTATTAAAATGTTATGAGAG,,
4177,AI041482,,20,30,AAATGTTATGAGAGCACTGT,,
4178,AI041482,,20,24,TATGAGAGCACTGTCAAAAA,,
4179,AI041482,,20,18,AGCACTGTCAAAAAAAAAAA,,
4180,AI041482,,20,12,GTCAAAAAAAAAAAAAAAAA,,
4181,AI041482,,20,6,AAAAAAAAAAAAAAAAAAAA,,
(GENBANK ACCESSION NO. AI051839)
TTTTTTTTTTTTTTTTTTTTTTTTTTTTTTAGGTAACTAAGTTTCCTGTTTAATGATATATTTAGGAAATTCTGATATCATTTCAAGTAT
CTTTAAAAACAATCTACTTAATTGTCAACAACCAAGTGTATGGAAATTTACGTAAAATCCTGTTTACAGATGAGAGAAGGCGGCTGC
TGTGGTGACAGCACACAGTCAGCAAAGAGGTCCAGAGGATGACGTGCAGCTTCCCGGCGGCCTGGAGAGCTCCCCAGGTCTCACCC
CATCCCGCTTCCATCTCAAGGCTCTGGGCACCCCCCTCTTGCAGACCTGCTTCTATTTCTTTGGACAGTTTGGGAAAATCACGCTCTT
TAACCCTAAACACTTCGGATCACTTCAAAACAAGATGCTCAGAAAAGGGAAACTCTAATCCGTCAACCAGGGAAAGATAGTAACTG
TCTAATCGCACAGCATCCCACAGTGAGCAGCCACC
(SEQ ID NO: 4182)

4183,AI051839,,20,454,GGTGGCTGCTCACTGTGGGA,,
4184,AI051839,,20,448,TGCTCACTGTGGGATGCTGT,,
4185,AI051839,,20,442,CTGTGGGATGCTGTGCGATT,,
4186,AI051839,,20,436,GATGCTGTGCGATTAGACAG,,
4187,AI051839,,20,430,GTGCGATTAGACAGTTACTA,,
4188,AI051839,,20,424,TTAGACAGTTACTATCTTTC,,
4189,AI051839,,20,418,AGTTACTATCTTTCCCTGGT,,
4190,AI051839,,20,412,TATCTTTCCCTGGTTGACGG,,

4191,AI051839,,20,406,TCCCTGGTTGACGGATTAGA,,
4192,AI051839,,20,400,GTTGACGGATTAGAGTTTCC,,
4193,AI051839,,20,394,GGATTAGAGTTTCCCTTTTC,,
4194,AI051839,,20,388,GAGTTTCCCTTTTCTGAGCA,,
4195,AI051839,,20,382,CCCTTTTCTGAGCATCTTGT,,
4196,AI051839,,20,376,TCTGAGCATCTTGTTTTGAA,,
4197,AI051839,,20,370,CATCTTGTTTTGAAGTGATC,,
4198,AI051839,,20,364,GTTTTGAAGTGATCCGAAGT,,
4199,AI051839,,20,358,AAGTGATCCGAAGTGTTTAG,,
4200,AI051839,,20,352,TCCGAAGTGTTTAGGGTTAA,,
4201,AI051839,,20,346,GTGTTTAGGGTTAAAGAGCG,,
4202,AI051839,,20,340,AGGGTTAAAGAGCGTGATTT,,
4203,AI051839,,20,334,AAAGAGCGTGATTTTCCCAA,,
4204,AI051839,,20,328,CGTGATTTTCCCAAACTGTC,,
4205,AI051839,,20,322,TTTCCCAAACTGTCCAAAGA,,
4206,AI051839,,20,316,AAACTGTCCAAAGAAATAGA,,
4207,AI051839,,20,310,TCCAAAGAAATAGAAGCAGG,,
4208,AI051839,,20,304,GAAATAGAAGCAGGTCTGCA,,
4209,AI051839,,20,298,GAAGCAGGTCTGCAAGAGGG,,
4210,AI051839,,20,292,GGTCTGCAAGAGGGGGGTGC,,
4211,AI051839,,20,286,CAAGAGGGGGGTGCCCAGAG,,
4212,AI051839,,20,280,GGGGGTGCCCAGAGCCTTGA,,
4213,AI051839,,20,274,GCCCAGAGCCTTGAGATGGA,,
4214,AI051839,,20,268,AGCCTTGAGATGGAAGCGGG,,
4215,AI051839,,20,262,GAGATGGAAGCGGGATGGGG,,
4216,AI051839,,20,256,GAAGCGGGATGGGGTGAGAC,,
4217,AI051839,,20,250,GGATGGGGTGAGACCTGGGG,,
4218,AI051839,,20,244,GGTGAGACCTGGGGAGCTCT,,
4219,AI051839,,20,238,ACCTGGGGAGCTCTCCAGGC,,
4220,AI051839,,20,232,GGAGCTCTCCAGGCCGCCGG,,
4221,AI051839,,20,226,CTCCAGGCCGCCGGGAAGCT,,
4222,AI051839,,20,220,GCCGCCGGGAAGCTGCACGT,,
4223,AI051839,,20,214,GGGAAGCTGCACGTCATCCT,,
4224,AI051839,,20,208,CTGCACGTCATCCTCTGGAC,,
4225,AI051839,,20,202,GTCATCCTCTGGACCTCTTT,,
4226,AI051839,,20,196,CTCTGGACCTCTTTGCTGAC,,
4227,AI051839,,20,190,ACCTCTTTGCTGACTGTGTG,,
4228,AI051839,,20,184,TTGCTGACTGTGTGCTGTCA,,
4229,AI051839,,20,178,ACTGTGTGCTGTCACCACAG,,
4230,AI051839,,20,172,TGCTGTCACCACAGCAGCCG,,
4231,AI051839,,20,166,CACCACAGCAGCCGCCTTCT,,
4232,AI051839,,20,160,AGCAGCCGCCTTCTCTCATC,,
4233,AI051839,,20,154,CGCCTTCTCTCATCTGTAAA,,
4234,AI051839,,20,148,CTCTCATCTGTAAACAGGAT,,
4235,AI051839,,20,142,TCTGTAAACAGGATTTTACG,,
4236,AI051839,,20,136,AACAGGATTTTACGTAAATT,,
4237,AI051839,,20,130,ATTTTACGTAAATTTCCATA,,
4238,AI051839,,20,124,CGTAAATTTCCATACACTTG,,
4239,AI051839,,20,118,TTTCCATACACTTGGTTGTT,,
4240,AI051839,,20,112,TACACTTGGTTGTTGACAAT,,
4241,AI051839,,20,106,TGGTTGTTGACAATTAAGTA,,
4242,AI051839,,20,100,TTGACAATTAAGTAGATTGT,,
4243,AI051839,,20,94,ATTAAGTAGATTGTTTTTAA,,
4244,AI051839,,20,88,TAGATTGTTTTTAAAGATAC,,
4245,AI051839,,20,82,GTTTTTAAAGATACTTGAAA,,
4246,AI051839,,20,76,AAAGATACTTGAAATGATAT,,
4247,AI051839,,20,70,ACTTGAAATGATATCAGAAT,,
4248,AI051839,,20,64,AATGATATCAGAATTTCCTA,,
4249,AI051839,,20,58,ATCAGAATTTCCTAAATATA,,
4250,AI051839,,20,52,ATTTCCTAAATATATCATTA,,
4251,AI051839,,20,46,TAAATATATCATTAAAACAG,,
4252,AI051839,,20,40,TATCATTAAAACAGGAAACT,,
4253,AI051839,,20,34,TAAAACAGGAAACTTAGTTA,,
4254,AI051839,,20,28,AGGAAACTTAGTTACCTAAA,,
4255,AI051839,,20,22,CTTAGTTACCTAAAAAAAAA,,
4256,AI051839,,20,16,TACCTAAAAAAAAAAAAAAA,,
4257,AI051839,,20,10,AAAAAAAAAAAAAAAAAAAA,,
4258,AI051839,,20,4,AAAAAAAAAAAAAAAAAAAA,,
(GENBANK ACCESSION NO. AI092429)
TTTTTTTTTTTTTTTTTTTTTTTTTCTTCTCGTCTTGCTAGAACCTGGTAGTGCAGGGGTACAAGTCAGTTCATTGGGCAACTGAAATTG
GGTGGGGTTCCGCTCCATGGCGGCAGCAATCAGCAGCTCAAAGGGCCGCCTCAGCTGGGGCTGCACATAGTCTGGCTCCGCTGCTA
CTGGTTCCTCATCCACGTCAATGATGTCTTCGTCGACATCATTCTGCTCAAAGGTGGGAGTCTCTGTGCTGGCGCTGGATGTGGGTGT
GCCAGGCCTGCTGGCTCTCCTTTCCAGGATCCGGGCATGGGCAATGGCCTTTAGTTCAGTTTTGCTGGCCGATCTGTCCAACAAGTC
AGTGTCACTGCTGGGGGATGTAGTCCGTTTGCCAGATTTGTCCACCAGTCCATTGACATGACCCAGCTCCTTTTTCTG
(SEQ ID NO: 4259)

4260,AI092429,,20,409,CAGAAAAAGGAGCTGGGTCA,,
4261,AI092429,,20,403,AAGGAGCTGGGTCATGTCAA,,
4262,AI092429,,20,397,CTGGGTCATGTCAATGGACT,,
4263,AI092429,,20,391,CATGTCAATGGACTGGTGGA,,
4264,AI092429,,20,385,AATGGACTGGTGGACAAATC,,
4265,AI092429,,20,379,CTGGTGGACAAATCTGGCAA,,
4266,AI092429,,20,373,GACAAATCTGGCAAACGGAC,,
4267,AI092429,,20,367,TCTGGCAAACGGACTACATC,,
4268,AI092429,,20,361,AAACGGACTACATCCCCCAG,,
4269,AI092429,,20,355,ACTACATCCCCCAGCAGTGA,,
4270,AI092429,,20,349,TCCCCCAGCAGTGACACTGA,,
4271,AI092429,,20,343,AGCAGTGACACTGACTTGTT,,
4272,AI092429,,20,337,GACACTGACTTGTTGGACAG,,
4273,AI092429,,20,331,GACTTGTTGGACAGATCGGC,,
4274,AI092429,,20,325,TTGGACAGATCGGCCAGCAA,,
4275,AI092429,,20,319,AGATCGGCCAGCAAAACTGA,,
4276,AI092429,,20,313,GCCAGCAAAACTGAACTAAA,,
4277,AI092429,,20,307,AAAACTGAACTAAAGGCCAT,,
4278,AI092429,,20,301,GAACTAAAGGCCATTGCCCA,,
4279,AI092429,,20,295,AAGGCCATTGCCCATGCCCG,,
4280,AI092429,,20,289,ATTGCCCATGCCCGGATCCT,,
4281,AI092429,,20,283,CATGCCCGGATCCTGGAAAG,,
4282,AI092429,,20,277,CGGATCCTGGAAAGGAGAGC,,
4283,AI092429,,20,271,CTGGAAAGGAGAGCCAGCAG,,
4284,AI092429,,20,265,AGGAGAGCCAGCAGGCCTGG,,
4285,AI092429,,20,259,GCCAGCAGGCCTGGCACACC,,
4286,AI092429,,20,253,AGGCCTGGCACACCCACATC,,
4287,AI092429,,20,247,GGCACACCCACATCCAGCGC,,
4288,AI092429,,20,241,CCCACATCCAGCGCCAGCAC,,
4289,AI092429,,20,235,TCCAGCGCCAGCACAGAGAC,,
4290,AI092429,,20,229,GCCAGCACAGAGACTCCCAC,,
4291,AI092429,,20,223,ACAGAGACTCCCACCTTTGA,,
4292,AI092429,,20,217,ACTCCCACCTTTGAGCAGAA,,
4293,AI092429,,20,211,ACCTTTGAGCAGAATGATGT,,
4294,AI092429,,20,205,GAGCAGAATGATGTCGACGA,,
4295,AI092429,,20,199,AATGATGTCGACGAAGACAT,,
4296,AI092429,,20,193,GTCGACGAAGACATCATTGA,,
4297,AI092429,,20,187,GAAGACATCATTGACGTGGA,,
4298,AI092429,,20,181,ATCATTGACGTGGATGAGGA,,
4299,AI092429,,20,175,GACGTGGATGAGGAACCAGT,,
4300,AI092429,,20,169,GATGAGGAACCAGTAGCAGC,,
4301,AI092429,,20,163,GAACCAGTAGCAGCGGAGCC,,
4302,AI092429,,20,157,GTAGCAGCGGAGCCAGACTA,,
4303,AI092429,,20,151,GCGGAGCCAGACTATGTGCA,,
4304,AI092429,,20,145,CCAGACTATGTGCAGCCCCA,,
4305,AI092429,,20,139,TATGTGCAGCCCCAGCTGAG,,
4306,AI092429,,20,133,CAGCCCCAGCTGAGGCGGCC,,
4307,AI092429,,20,127,CAGCTGAGGCGGCCCTTTGA,,
4308,AI092429,,20,121,AGGCGGCCCTTTGAGCTGCT,,
4309,AI092429,,20,115,CCCTTTGAGCTGCTGATTGC,,
4310,AI092429,,20,109,GAGCTGCTGATTGCTGCCGC,,
4311,AI092429,,20,103,CTGATTGCTGCCGCCATGGA,,
4312,AI092429,,20,97,GCTGCCGCCATGGAGCGGAA,,
4313,AI092429,,20,91,GCCATGGAGCGGAACCCCAC,,
4314,AI092429,,20,85,GAGCGGAACCCCACCCAATT,,
4315,AI092429,,20,79,AACCCCACCCAATTTCAGTT,,
4316,AI092429,,20,73,ACCCAATTTCAGTTGCCCAA,,
4317,AI092429,,20,67,TTTCAGTTGCCCAATGAACT,,
4318,AI092429,,20,61,TTGCCCAATGAACTGACTTG,,
4319,AI092429,,20,55,AATGAACTGACTTGTACCCC,,
4320,AI092429,,20,49,CTGACTTGTACCCCTGCACT,,
4321,AI092429,,20,43,TGTACCCCTGCACTACCAGG,,
4322,AI092429,,20,37,CCTGCACTACCAGGTTCTAG,,
4323,AI092429,,20,31,CTACCAGGTTCTAGCAAGAC,,
4324,AI092429,,20,25,GGTTCTAGCAAGACGAGAAG,,
4325,AI092429,,20,19,AGCAAGACGAGAAGAAAAAA,,
4326,AI092429,,20,13,ACGAGAAGAAAAAAAAAAAA,,
4327,AI092429,,20,7,AGAAAAAAAAAAAAAAAAAA,,
4328,AI092429,,20,1,AAAAAAAAAAAAAAAAAAAA,,
(GENBANK ACCESSION NO. AI096522)
TTTTTTTTTTTTTTTTTTTTTTTTTTACAGGCACTCAGCTTTTATGGGGCCCAGCAGGTAGGAAACCAGCAAATTCCAAACCCCCCATTA
TTTCCCTTGGGGCATAGCTCCACTGGTGGTTACTCTAATGTTTCAAAGGCCTCCACTGTATTCATTAAGCAGGGATCAGATGCCACTA
TCCAAACCCCTCATTCCCTTGACCCCGAACCCAAAAGAGC
(SEQ ID NO: 4329)

4330,AI096522,,20,198,GCTCTTTTGGGTTCGGGGTC,,
4331,AI096522,,20,192,TTGGGTTCGGGGTCAAGGGA,,
4332,AI096522,,20,186,TCGGGGTCAAGGGAATGAGG,,
4333,AI096522,,20,180,TCAAGGGAATGAGGGGTTTG,,
4334,AI096522,,20,174,GAATGAGGGGTTTGGATAGT,,
4335,AI096522,,20,168,GGGGTTTGGATAGTGGCATC,,
4336,AI096522,,20,162,TGGATAGTGGCATCTGATCC,,
4337,AI096522,,20,156,GTGGCATCTGATCCCTGCTT,,
4338,AI096522,,20,150,TCTGATCCCTGCTTAATGAA,,
4339,AI096522,,20,144,CCCTGCTTAATGAATACAGT,,
4340,AI096522,,20,138,TTAATGAATACAGTGGAGGC,,
4341,AI096522,,20,132,AATACAGTGGAGGCCTTTGA,,
4342,AI096522,,20,126,GTGGAGGCCTTTGAAACATT,,
4343,AI096522,,20,120,GCCTTTGAAACATTAGAGTA,,
4344,AI096522,,20,114,GAAACATTAGAGTAACCACC,,
4345,AI096522,,20,108,TTAGAGTAACCACCAGTGGA,,
4346,AI096522,,20,102,TAACCACCAGTGGAGCTATG,,
4347,AI096522,,20,96,CCAGTGGAGCTATGCCCCAA,,
4348,AI096522,,20,90,GAGCTATGCCCCAAGGGAAA,,
4349,AI096522,,20,84,TGCCCCAAGGGAAATAATGG,,
4350,AI096522,,20,78,AAGGGAAATAATGGGGGGTT,,
4351,AI096522,,20,72,AATAATGGGGGGTTTGGAAT,,
4352,AI096522,,20,66,GGGGGGTTTGGAATTTGCTG,,
4353,AI096522,,20,60,TTTGGAATTTGCTGGTTTCC,,
4354,AI096522,,20,54,ATTTGCTGGTTTCCTACCTG,,
4355,AI096522,,20,48,TGGTTTCCTACCTGCTGGGC,,
4356,AI096522,,20,42,CCTACCTGCTGGGCCCCATA,,
4357,AI096522,,20,36,TGCTGGGCCCCATAAAAGCT,,
4358,AI096522,,20,30,GCCCCATAAAAGCTGAGTGC,,
4359,AI096522,,20,24,TAAAAGCTGAGTGCCTGTAA,,
4360,AI096522,,20,18,CTGAGTGCCTGTAAAAAAAA,,
4361,AI096522,,20,12,GCCTGTAAAAAAAAAAAAAA,,
4362,AI096522,,20,6,AAAAAAAAAAAAAAAAAAAA,,
(GENBANK ACCESSION NO. AI122807)
TTTTTTTTTTTTTTTTTTTTTTTTTTAAAACAACCAAGGTTTACTTCTCACTTTACATGTCCTTCATGATGTGACTGGGACTCTGTTCCGCA
TCATCTTCCCTCCAATACCAAGGCTGATCGTGCATATGCTCTCTGGAACACTGATGATTGCCATGGCAAAGAGAAAAAGAGTTCTGG
AAGGTCTTGCATCAACAATTAAATGCTATGCTCACACTTAATTCGGAGAACATGTCATGTAGTTCAACCCCATCACAGGGAGGCCAG
GGCATACAATCCTCCTATATTCCTTAAACAGGCGGAAAGAGGAAAAGAAACCAGCGAATGAGTTTGAGAAGCTGCCCTCTGAGAAA
GCGAACTCTTAAAAATG
(SEQ ID NO: 4363)

4364,AI122807,,20,348,CATTTTTAAGAGTTCGCTTT,,
4365,AI122807,,20,342,TAAGAGTTCGCTTTCTCAGA,,
4366,AI122807,,20,336,TTCGCTTTCTCAGAGGGCAG,,
4367,AI122807,,20,330,TTCTCAGAGGGCAGCTTCTC,,
4368,AI122807,,20,324,GAGGGCAGCTTCTCAAACTC,,
4369,AI122807,,20,318,AGCTTCTCAAACTCATTCGC,,
4370,AI122807,,20,312,TCAAACTCATTCGCTGGTTT,,
4371,AI122807,,20,306,TCATTCGCTGGTTTCTTTTC,,
4372,AI122807,,20,300,GCTGGTTTCTTTTCCTCTTT,,
4373,AI122807,,20,294,TTCTTTTCCTCTTTCCGCCT,,
4374,AI122807,,20,288,TCCTCTTTCCGCCTGTTTAA,,
4375,AI122807,,20,282,TTCCGCCTGTTTAAGGAATA,,
4376,AI122807,,20,276,CTGTTTAAGGAATATAGGAG,,
4377,AI122807,,20,270,AAGGAATATAGGAGGATTGT,,
4378,AI122807,,20,264,TATAGGAGGATTGTATGCCC,,
4379,AI122807,,20,258,AGGATTGTATGCCCTGGCCT,,
4380,AI122807,,20,252,GTATGCCCTGGCCTCCCTGT,,
4381,AI122807,,20,246,CCTGGCCTCCCTGTGATGGG,,
4382,AI122807,,20,240,CTCCCTGTGATGGGGTTGAA,,
4383,AI122807,,20,234,GTGATGGGGTTGAACTACAT,,
4384,AI122807,,20,228,GGGTTGAACTACATGACATG,,
4385,AI122807,,20,222,AACTACATGACATGTTCTCC,,
4386,AI122807,,20,216,ATGACATGTTCTCCGAATTA,,
4387,AI122807,,20,210,TGTTCTCCGAATTAAGTGTG,,
4388,AI122807,,20,204,CCGAATTAAGTGTGAGCATA,,
4389,AI122807,,20,198,TAAGTGTGAGCATAGCATTT,,
4390,AI122807,,20,192,TGAGCATAGCATTTAATTGT,,
4391,AI122807,,20,186,TAGCATTTAATTGTTGATGC,,
4392,AI122807,,20,180,TTAATTGTTGATGCAAGACC,,
4393,AI122807,,20,174,GTTGATGCAAGACCTTCCAG,,
4394,AI122807,,20,168,GCAAGACCTTCCAGAACTCT,,
4395,AI122807,,20,162,CCTTCCAGAACTCTTTTTCT,,
4396,AI122807,,20,156,AGAACTCTTTTTCTCTTTGC,,

4397,AI122807,,20,150,CTTTTTCTCTTTGCCATGGC,,
4398,AI122807,,20,144,CTCTTTGCCATGGCAATCAT,,
4399,AI122807,,20,138,GCCATGGCAATCATCAGTGT,,
4400,AI122807,,20,132,GCAATCATCAGTGTTCCAGA,,
4401,AI122807,,20,126,ATCAGTGTTCCAGAGAGCAT,,
4402,AI122807,,20,120,GTTCCAGAGAGCATATGCAC,,
4403,AI122807,,20,114,GAGAGCATATGCACGATCAG,,
4404,AI122807,,20,108,ATATGCACGATCAGCCTTGG,,
4405,AI122807,,20,102,ACGATCAGCCTTGGTATTGG,,
4406,AI122807,,20,96,AGCCTTGGTATTGGAGGGAA,,
4407,AI122807,,20,90,GGTATTGGAGGGAAGATGAT,,
4408,AI122807,,20,84,GGAGGGAAGATGATGCGGAA,,
4409,AI122807,,20,78,AAGATGATGCGGAACAGAGT,,
4410,AI122807,,20,72,ATGCGGAACAGAGTCCCAGT,,
4411,AI122807,,20,66,AACAGAGTCCCAGTCACATC,,
4412,AI122807,,20,60,GTCCCAGTCACATCATGAAG,,
4413,AI122807,,20,54,GTCACATCATGAAGGACATG,,
4414,AI122807,,20,48,TCATGAAGGACATGTAAAGT,,
4415,AI122807,,20,42,AGGACATGTAAAGTGAGAAG,,
4416,AI122807,,20,36,TGTAAAGTGAGAAGTAAACC,,
4417,AI122807,,20,30,GTGAGAAGTAAACCTTGGTT,,
4418,AI122807,,20,24,AGTAAACCTTGGTTGTTTTA,,
4419,AI122807,,20,18,CCTTGGTTGTTTTAAAAAAA,,
4420,AI122807,,20,12,TTGTTTTAAAAAAAAAAAAA,,
4421,AI122807,,20,6,TAAAAAAAAAAAAAAAAAAA,,
(GENBANK ACCESSION NO. AI041212)
TTTTTTTTTTTTTTTTTTTTTTTTAGATGAAGAACAGCTTTATTAACTGAAATCCATTTATATTTGAAGCTCATATATGCTACAACTTA
GTCTTCTCAATGTTAAAAATAATTTTTTTCTACCATGTAAAACCTAGCCTTCTCTTTGACTTTTGAAAATTATATTTTGGTCCCTGAGA
GTTATAAAAAGGGAGCTGGACTCCAGTAACATCATTTGCCTGATAGCTGGGTCTTAATCCACCTTTGTCCACAAACACTGGTCCACG
GCCACCTCCAGGTCCTTCCTGTACAGCTTTTACAAGAGGGTAAATATATTTATTTGGTGTTTCCGATTCAAGTTCAATTACCTCTCTG
GCATAGTCCTGAAATTCTTTCTCCTTT
(SEQ ID NO: 4422)

4423,AI041212,,20,362,AAAGGAGAAAGAATTTCAGG,,
4424,AI041212,,20,356,GAAAGAATTTCAGGACTATG,,
4425,AI041212,,20,350,ATTTCAGGACTATGCCAGAG,,
4426,AI041212,,20,344,GGACTATGCCAGAGAGGTAA,,
4427,AI041212,,20,338,TGCCAGAGAGGTAATTGAAC,,
4428,AI041212,,20,332,AGAGGTAATTGAACTTGAAT,,
4429,AI041212,,20,326,AATTGAACTTGAATCGGAAA,,
4430,AI041212,,20,320,ACTTGAATCGGAAACACCAA,,
4431,AI041212,,20,314,ATCGGAAACACCAAATAAAT,,
4432,AI041212,,20,308,AACACCAAATAAATATATTT,,
4433,AI041212,,20,302,AAATAAATATATTTACCCTC,,
4434,AI041212,,20,296,ATATATTTACCCTCTTGTAA,,
4435,AI041212,,20,290,TTACCCTCTTGTAAAAGCTG,,
4436,AI041212,,20,284,TCTTGTAAAAGCTGTACAGG,,
4437,AI041212,,20,278,AAAAGCTGTACAGGAAGGAC,,
4438,AI041212,,20,272,TGTACAGGAAGGACCTGGAG,,
4439,AI041212,,20,266,GGAAGGACCTGGAGGTGGCC,,
4440,AI041212,,20,260,ACCTGGAGGTGGCCGTGGAC,,
4441,AI041212,,20,254,AGGTGGCCGTGGACCAGTGT,,
4442,AI041212,,20,248,CCGTGGACCAGTGTTTGTGG,,
4443,AI041212,,20,242,ACCAGTGTTTGTGGACAAAG,,
4444,AI041212,,20,236,GTTTGTGGACAAAGGTGGAT,,
4445,AI041212,,20,230,GGACAAAGGTGGATTAAGAC,,
4446,AI041212,,20,224,AGGTGGATTAAGACCCAGCT,,
4447,AI041212,,20,218,ATTAAGACCCAGCTATCAGG,,
4448,AI041212,,20,212,ACCCAGCTATCAGGCAAATG,,
4449,AI041212,,20,206,CTATCAGGCAAATGATGTTA,,
4450,AI041212,,20,200,GGCAAATGATGTTACTGGAG,,
4451,AI041212,,20,194,TGATGTTACTGGAGTCCAGC,,
4452,AI041212,,20,188,TACTGGAGTCCAGCTCCCTT,,
4453,AI041212,,20,182,AGTCCAGCTCCCTTTTTATA,,
4454,AI041212,,20,176,GCTCCCTTTTTATAACTCTC,,
4455,AI041212,,20,170,TTTTTATAACTCTCAGGGAC,,
4456,AI041212,,20,164,TAACTCTCAGGGACCAAAAT,,
4457,AI041212,,20,158,TCAGGGACCAAAATATAATT,,
4458,AI041212,,20,152,ACCAAAATATAATTTTCAAA,,
4459,AI041212,,20,146,ATATAATTTTCAAAAGTCAA,,
4460,AI041212,,20,140,TTTTCAAAAGTCAAAGAGAA,,
4461,AI041212,,20,134,AAAGTCAAAGAGAAGGCTAG,,
4462,AI041212,,20,128,AAAGAGAAGGCTAGGTTTTA,,
4463,AI041212,,20,122,AAGGCTAGGTTTTACATGGT,,
4464,AI041212,,20,116,AGGTTTTACATGGTAGAAAA,,

4465,AI041212,,20,110,TACATGGTAGAAAAAAATTA,,
4466,AI041212,,20,104,GTAGAAAAAAATTATTTTTA,,
4467,AI041212,,20,98,AAAAATTATTTTTAACATTG,,
4468,AI041212,,20,92,TATTTTTAACATTGAGAAGA,,
4469,AI041212,,20,86,TAACATTGAGAAGACTAAGT,,
4470,AI041212,,20,80,TGAGAAGACTAAGTTGTAGC,,
4471,AI041212,,20,74,GACTAAGTTGTAGCATATAT,,
4472,AI041212,,20,68,GTTGTAGCATATATGAGCTT,,
4473,AI041212,,20,62,GCATATATGAGCTTCAAATA,,
4474,AI041212,,20,56,ATGAGCTTCAAATATAAATG,,
4475,AI041212,,20,50,TTCAAATATAAATGGATTTC,,
4476,AI041212,,20,44,TATAAATGGATTTCAGTTAA,,
4477,AI041212,,20,38,TGGATTTCAGTTAATAAAGC,,
4478,AI041212,,20,32,TCAGTTAATAAAGCTGTTCT,,
4479,AI041212,,20,26,AATAAAGCTGTTCTTCATCT,,
4480,AI041212,,20,20,GCTGTTCTTCATCTAAAAAA,,
4481,AI041212,,20,14,CTTCATCTAAAAAAAAAAAA,,
4482,AI041212,,20,8,CTAAAAAAAAAAAAAAAAAA,,
4483,AI041212,,20,2,AAAAAAAAAAAAAAAAAAAA,,
(GENBANK ACCESSION NO. AI125651)
TTTTTTTTTTTTTTTTTTTTTTTTTTGAGACTTCACACTGTATTTATTACATGGTTATAAGGAACATCACGTGCAAGACACTAACAATT
ATGACGACTTTGGACATTGCTAGGTAATTGTCAAAATTGTGCATTTGAACAGCAGCAAAATATTCAAAGCTGGTGTGCCCTCGCTGA
CACGAAATGAATTGTCATTTTCTGAACATTCACCAAAGCCTGCCAGGCGCTAGGCCTAGGTTCAGCAGCACACAATAGTGAAGCCC
CCATTCAAGCGGGCTTCGTTTCACCAGCGTACGTCACACGTCCGTGGAGCAGCGAGACCAGAGGAGCTGGGAAAGCCAGGGCTGAG
CCTTGTGCTTTTGCCCTTTTAAGGGAGGA
(SEQ ID NO: 4484)

4485,AI125651,,20,358,TCCTCCCTTAAAAGGGCAAA,,
4486,AI125651,,20,352,CTTAAAAGGGCAAAAGCACA,,
4487,AI125651,,20,346,AGGGCAAAAGCACAAGGCTC,,
4488,AI125651,,20,340,AAAGCACAAGGCTCAGCCCT,,
4489,AI125651,,20,334,CAAGGCTCAGCCCTGGCTTT,,
4490,AI125651,,20,328,TCAGCCCTGGCTTTCCCAGC,,
4491,AI125651,,20,322,CTGGCTTTCCCAGCTCCTCT,,
4492,AI125651,,20,316,TTCCCAGCTCCTCTGGTCTC,,
4493,AI125651,,20,310,GCTCCTCTGGTCTCGCTGCT,,
4494,AI125651,,20,304,CTGGTCTCGCTGCTCCACGG,,
4495,AI125651,,20,298,TCGCTGCTCCACGGACGTGT,,
4496,AI125651,,20,292,CTCCACGGACGTGTGACGTA,,
4497,AI125651,,20,286,GGACGTGTGACGTACGCTGG,,
4498,AI125651,,20,280,GTGACGTACGCTGGTGAAAC,,
4499,AI125651,,20,274,TACGCTGGTGAAACGAAGCC,,
4500,AI125651,,20,268,GGTGAAACGAAGCCCGCTTG,,
4501,AI125651,,20,262,ACGAAGCCCGCTTGAATGGG,,
4502,AI125651,,20,256,CCCGCTTGAATGGGGGCTTC,,
4503,AI125651,,20,250,TGAATGGGGGCTTCACTATT,,
4504,AI125651,,20,244,GGGGCTTCACTATTGTGTGC,,
4505,AI125651,,20,238,TCACTATTGTGTGCTGCTGA,,
4506,AI125651,,20,232,TTGTGTGCTGCTGAACCTAG,,
4507,AI125651,,20,226,GCTGCTGAACCTAGGCCTAG,,
4508,AI125651,,20,220,GAACCTAGGCCTAGCGCCTG,,
4509,AI125651,,20,214,AGGCCTAGCGCCTGGCAGGC,,
4510,AI125651,,20,208,AGCGCCTGGCAGGCTTTGGT,,
4511,AI125651,,20,202,TGGCAGGCTTTGGTGAATGT,,
4512,AI125651,,20,196,GCTTTGGTGAATGTTCAGAA,,
4513,AI125651,,20,190,GTGAATGTTCAGAAAATGAC,,
4514,AI125651,,20,184,GTTCAGAAAATGACAATTCA,,
4515,AI125651,,20,178,AAAATGACAATTCATTTCGT,,
4516,AI125651,,20,172,ACAATTCATTTCGTGTCAGC,,
4517,AI125651,,20,166,CATTTCGTGTCAGCGAGGGC,,
4518,AI125651,,20,160,GTGTCAGCGAGGGCACACCA,,
4519,AI125651,,20,154,GCGAGGGCACACCAGCTTTG,,
4520,AI125651,,20,148,GCACACCAGCTTTGAATATT,,
4521,AI125651,,20,142,CAGCTTTGAATATTTTGCTG,,
4522,AI125651,,20,136,TGAATATTTTGCTGCTGTTC,,
4523,AI125651,,20,130,TTTTGCTGCTGTTCAAATGC,,
4524,AI125651,,20,124,TGCTGTTCAAATGCACAATT,,
4525,AI125651,,20,118,TCAAATGCACAATTTTGACA,,
4526,AI125651,,20,112,GCACAATTTTGACAATTACC,,
4527,AI125651,,20,106,TTTTGACAATTACCTAGCAA,,
4528,AI125651,,20,100,CAATTACCTAGCAATGTCCA,,
4529,AI125651,,20,94,CCTAGCAATGTCCAAAGTCG,,
4530,AI125651,,20,88,AATGTCCAAAGTCGTCATAA,,
4531,AI125651,,20,82,CAAAGTCGTCATAATTGTTA,,
4532,AI125651,,20,76,CGTCATAATTGTTAGTGTCT,,

4533,AI125651,,20,70,AATTGTTAGTGTCTTGCACG,,
4534,AI125651,,20,64,TAGTGTCTTGCACGTGATGT,,
4535,AI125651,,20,58,CTTGCACGTGATGTTCCTTA,,
4536,AI125651,,20,52,CGTGATGTTCCTTATAACCA,,
4537,AI125651,,20,46,GTTCCTTATAACCATGTAAT,,
4538,AI125651,,20,40,TATAACCATGTAATAAATAC,,
4539,AI125651,,20,34,CATGTAATAAATACAGTGTG,,
4540,AI125651,,20,28,ATAAATACAGTGTGAAGTCT,,
4541,AI125651,,20,22,ACAGTGTGAAGTCTCAAAAA,,
4542,AI125651,,20,16,TGAAGTCTCAAAAAAAAAAA,,
4543,AI125651,,20,10,CTCAAAAAAAAAAAAAAAAA,,
4544,AI125651,,20,4,AAAAAAAAAAAAAAAAAAAA,,
(GENBANK ACCESSION NO. AI001174)
TCATGGGTCACTGAGGCTTTTTATTTTGAGCACAAAACCACCGGGGATCTAGCCTGTGGCACCCCGGAGATGACACGAGGCTCACAT
GACTCTAGACACTTGGTGGAAAGTGAGGCGAGAAAAACAATGACTTGGGCCAATTACACGACTGCAAAGCTAGAGCTGCCAACAG
GGCTCCAGGGAGCTTGGCTTCTGTAGAAGTTCTGTGACGTTCAGTTTCTTGCTAACCAGGGCAGGCGCAATAGTTTTATTGATGTGCT
CAACAGCCTTTGAGACACCCTTCCCCATATATGCGAGTCTTATCATTGTCCCGGAGCTCTAGGGCCTCATAGATACCAGTTTGAAGC
ACCACTGGGCACAGCAGCTCTGAAGAGACCTTTTCAGGTGAACAGATCAACCTCAACAGTGGGATTCCCGCGAGAGTCCAAGATCT
CCCGGCATGGATCTCGAGAATAGACATGGTGAACTTTCAGCCACTGGGTCTCGTCGCCTAGAGAGGAAGCGGAGTGTGCTTCAGAC
AC
(SEQ ID NO: 4545)

4546,AI001174,,20,502,GTGTCTGAAGCACACTCCGC,,
4547,AI001174,,20,496,GAAGCACACTCCGCTTCCTC,,
4548,AI001174,,20,490,CACTCCGCTTCCTCTCTAGG,,
4549,AI001174,,20,484,GCTTCCTCTCTAGGCGACGA,,
4550,AI001174,,20,478,TCTCTAGGCGACGAGACCCA,,
4551,AI001174,,20,472,GGCGACGAGACCCAGTGGCT,,
4552,AI001174,,20,466,GAGACCCAGTGGCTGAAAGT,,
4553,AI001174,,20,460,CAGTGGCTGAAAGTTCACCA,,
4554,AI001174,,20,454,CTGAAAGTTCACCATGTCTA,,
4555,AI001174,,20,448,GTTCACCATGTCTATTCTCG,,
4556,AI001174,,20,442,CATGTCTATTCTCGAGATCC,,
4557,AI001174,,20,436,TATTCTCGAGATCCATGCCG,,
4558,AI001174,,20,430,CGAGATCCATGCCGGGAGAT,,
4559,AI001174,,20,424,CCATGCCGGGAGATCTTGGA,,
4560,AI001174,,20,418,CGGGAGATCTTGGACTCTCG,,
4561,AI001174,,20,412,ATCTTGGACTCTCGCGGGAA,,
4562,AI001174,,20,406,GACTCTCGCGGGAATCCCAC,,
4563,AI001174,,20,400,CGCGGGAATCCCACTGTTGA,,
4564,AI001174,,20,394,AATCCCACTGTTGAGGTTGA,,
4565,AI001174,,20,388,ACTGTTGAGGTTGATCTGTT,,
4566,AI001174,,20,382,GAGGTTGATCTGTTCACCTG,,
4567,AI001174,,20,376,GATCTGTTCACCTGAAAAGG,,
4568,AI001174,,20,370,TTCACCTGAAAAGGTCTCTT,,
4569,AI001174,,20,364,TGAAAAGGTCTCTTCAGAGC,,
4570,AI001174,,20,358,GGTCTCTTCAGAGCTGCTGT,,
4571,AI001174,,20,352,TTCAGAGCTGCTGTGCCCAG,,
4572,AI001174,,20,346,GCTGCTGTGCCCAGTGGTGC,,
4573,AI001174,,20,340,GTGCCCAGTGGTGCTTCAAA,,
4574,AI001174,,20,334,AGTGGTGCTTCAAACTGGTA,,
4575,AI001174,,20,328,GCTTCAAACTGGTATCTATG,,
4576,AI001174,,20,322,AACTGGTATCTATGAGGCCC,,
4577,AI001174,,20,316,TATCTATGAGGCCCTAGAGC,,
4578,AI001174,,20,310,TGAGGCCCTAGAGCTCCGGG,,
4579,AI001174,,20,304,CCTAGAGCTCCGGGACAATG,,
4580,AI001174,,20,298,GCTCCGGGACAATGATAAGA,,
4581,AI001174,,20,292,GGACAATGATAAGACTCGCA,,
4582,AI001174,,20,286,TGATAAGACTCGCATATATG,,
4583,AI001174,,20,280,GACTCGCATATATGGGGAAG,,
4584,AI001174,,20,274,CATATATGGGGAAGGGTGTC,,
4585,AI001174,,20,268,TGGGGAAGGGTGTCTCAAAG,,
4586,AI001174,,20,262,AGGGTGTCTCAAAGGCTGTT,,
4587,AI001174,,20,256,TCTCAAAGGCTGTTGAGCAC,,
4588,AI001174,,20,250,AGGCTGTTGAGCACATCAAT,,
4589,AI001174,,20,244,TTGAGCACATCAATAAAACT,,
4590,AI001174,,20,238,ACATCAATAAAACTATTGCG,,
4591,AI001174,,20,232,ATAAAACTATTGCGCCTGCC,,
4592,AI001174,,20,226,CTATTGCGCCTGCCCTGGTT,,
4593,AI001174,,20,220,CGCCTGCCCTGGTTAGCAAG,,
4594,AI001174,,20,214,CCCTGGTTAGCAAGAAACTG,,
4595,AI001174,,20,208,TTAGCAAGAAACTGAACGTC,,
4596,AI001174,,20,202,AGAAACTGAACGTCACAGAA,,
4597,AI001174,,20,196,TGAACGTCACAGAACTTCTA,,
4598,AI001174,,20,190,TCACAGAACTTCTACAGAAG,,

4599,AI001174,,20,184,AACTTCTACAGAAGCCAAGC,,
4600,AI001174,,20,178,TACAGAAGCCAAGCTCCCTG,,
4601,AI001174,,20,172,AGCCAAGCTCCCTGGAGCCC,,
4602,AI001174,,20,166,GCTCCCTGGAGCCCTGTTGG,,
4603,AI001174,,20,160,TGGAGCCCTGTTGGCAGCTC,,
4604,AI001174,,20,154,CCTGTTGGCAGCTCTAGCTT,,
4605,AI001174,,20,148,GGCAGCTCTAGCTTTGCAGT,,
4606,AI001174,,20,142,TCTAGCTTTGCAGTCGTGTA,,
4607,AI001174,,20,136,TTTGCAGTCGTGTAATTGGC,,
4608,AI001174,,20,130,GTCGTGTAATTGGCCCAAGT,,
4609,AI001174,,20,124,TAATTGGCCCAAGTCATTGT,,
4610,AI001174,,20,118,GCCCAAGTCATTGTTTTTCT,,
4611,AI001174,,20,112,GTCATTGTTTTTCTCGCCTC,,
4612,AI001174,,20,106,GTTTTTCTCGCCTCACTTTC,,
4613,AI001174,,20,100,CTCGCCTCACTTTCCACCAA,,
4614,AI001174,,20,94,TCACTTTCCACCAAGTGTCT,,
4615,AI001174,,20,88,TCCACCAAGTGTCTAGAGTC,,
4616,AI001174,,20,82,AAGTGTCTAGAGTCATGTGA,,
4617,AI001174,,20,76,CTAGAGTCATGTGAGCCTCG,,
4618,AI001174,,20,70,TCATGTGAGCCTCGTGTCAT,,
4619,AI001174,,20,64,GAGCCTCGTGTCATCTCCGG,,
4620,AI001174,,20,58,CGTGTCATCTCCGGGGTGCC,,
4621,AI001174,,20,52,ATCTCCGGGGTGCCACAGGC,,
4622,AI001174,,20,46,GGGGTGCCACAGGCTAGATC,,
4623,AI001174,,20,40,CCACAGGCTAGATCCCCGGT,,
4624,AI001174,,20,34,GCTAGATCCCCGGTGGTTTT,,
4625,AI001174,,20,28,TCCCCGGTGGTTTTGTGCTC,,
4626,AI001174,,20,22,GTGGTTTTGTGCTCAAAATA,,
4627,AI001174,,20,16,TTGTGCTCAAAATAAAAAGC,,
4628,AI001174,,20,10,TCAAAATAAAAAGCCTCAGT,,
4629,AI001174,,20,4,TAAAAAGCCTCAGTGACCCA,,
(GENBANK ACCESSION NO. AI024215)
TTTTTTTTTTTTTTTTTTTTTTTTTTGACCAGTTGATGAAGTGGTGGCTTTAATTTGCGATTCTTGTGCAAACATTTGATAATGGGAATTG
GATGTGTAGGTATTGGGCTTTCTCGTGGACACTGAAATTCCATTCATTGAACAACACCTTATTTCCTGTATAGAGAATGGTGCTAGG
GGCCAGCGTCAAATTTGAAGATGAAGTCTGACTGAAGGTCATCGTTTGGAGTTGGGGTGGGGTGAAGAGTAGACAAACTCGGCCAG
AGTGATCGGAGTTGGCGGCTGTCTGGGGGAGTTGGGTCAGGAAGCCCCTTCTTTCGCCACCGATGGGGCACGTC
(SEQ ID NO: 4630)

4631,AI024215,,20,318,GACGTGCCCCATCGGTGGCG,,
4632,AI024215,,20,312,CCCCATCGGTGGCGAAAGAA,,
4633,AI024215,,20,306,CGGTGGCGAAAGAAGGGGCT,,
4634,AI024215,,20,300,CGAAAGAAGGGGCTTCCTGA,,
4635,AI024215,,20,294,AAGGGGCTTCCTGACCCAAC,,
4636,AI024215,,20,288,CTTCCTGACCCAACTCCCCC,,
4637,AI024215,,20,282,GACCCAACTCCCCCAGACAG,,
4638,AI024215,,20,276,ACTCCCCCAGACAGCCGCCA,,
4639,AI024215,,20,270,CCAGACAGCCGCCAACTCCG,,
4640,AI024215,,20,264,AGCCGCCAACTCCGATCACT,,
4641,AI024215,,20,258,CAACTCCGATCACTCTGGCC,,
4642,AI024215,,20,252,CGATCACTCTGGCCGAGTTT,,
4643,AI024215,,20,246,CTCTGGCCGAGTTTGTCTAC,,
4644,AI024215,,20,240,CCGAGTTTGTCTACTCTTCA,,
4645,AI024215,,20,234,TTGTCTACTCTTCACCCCAC,,
4646,AI024215,,20,228,ACTCTTCACCCCACCCCAAC,,
4647,AI024215,,20,222,CACCCCACCCCAACTCCAAA,,
4648,AI024215,,20,216,ACCCCAACTCCAAACGATGA,,
4649,AI024215,,20,210,ACTCCAAACGATGACCTTCA,,
4650,AI024215,,20,204,AACGATGACCTTCAGTCAGA,,
4651,AI024215,,20,198,GACCTTCAGTCAGACTTCAT,,
4652,AI024215,,20,192,CAGTCAGACTTCATCTTCAA,,
4653,AI024215,,20,186,GACTTCATCTTCAAATTTGA,,
4654,AI024215,,20,180,ATCTTCAAATTTGACGCTGG,,
4655,AI024215,,20,174,AAATTTGACGCTGGCCCCTA,,
4656,AI024215,,20,168,GACGCTGGCCCCTAGCACCA,,
4657,AI024215,,20,162,GGCCCCTAGCACCATTCTCT,,
4658,AI024215,,20,156,TAGCACCATTCTCTATACAG,,
4659,AI024215,,20,150,CATTCTCTATACAGGAAATA,,
4660,AI024215,,20,144,CTATACAGGAAATAAGGTGT,,
4661,AI024215,,20,138,AGGAAATAAGGTGTTGTTCA,,
4662,AI024215,,20,132,TAAGGTGTTGTTCAATGAAT,,
4663,AI024215,,20,126,GTTGTTCAATGAATGGAATT,,
4664,AI024215,,20,120,CAATGAATGGAATTTCAGTG,,
4665,AI024215,,20,114,ATGGAATTTCAGTGTCCACG,,
4666,AI024215,,20,108,TTTCAGTGTCCACGAGAAAG,,
4667,AI024215,,20,102,TGTCCACGAGAAAGCCCAAT,,

4668,AI024215,,20,96,CGAGAAAGCCCAATACCTAC,,
4669,AI024215,,20,90,AGCCCAATACCTACACATCC,,
4670,AI024215,,20,84,ATACCTACACATCCAATTCC,,
4671,AI024215,,20,78,ACACATCCAATTCCCATTAT,,
4672,AI024215,,20,72,CCAATTCCCATTATCAAATG,,
4673,AI024215,,20,66,CCCATTATCAAATGTTTGCA,,
4674,AI024215,,20,60,ATCAAATGTTTGCACAAGAA,,
4675,AI024215,,20,54,TGTTTGCACAAGAATCGCAA,,
4676,AI024215,,20,48,CACAAGAATCGCAAATTAAA,,
4677,AI024215,,20,42,AATCGCAAATTAAAGCCACC,,
4678,AI024215,,20,36,AAATTAAAGCCACCACTTCA,,
4679,AI024215,,20,30,AAGCCACCACTTCATCAACT,,
4680,AI024215,,20,24,CCACTTCATCAACTGGTCAA,,
4681,AI024215,,20,18,CATCAACTGGTCAAAAAAAA,,
4682,AI024215,,20,12,CTGGTCAAAAAAAAAAAAAA,,
4683,AI024215,,20,6,AAAAAAAAAAAAAAAAAAAA,,
(GENBANK ACCESSION NO. AI034360)
TTTTTTTTTTTTTTTTTTTGGTTGTTGTAGCAGAATAGATTTATTTCATATTGAACTTATTATTTAAAAAAGAATCGATTCAAGAACAAG
TGTCTCAGGCTAGATTTGGTATTGTATAAGTAAGCTTTGTGTTAGAGGATGATAAGAATAAATTTAAAATTTTAATTGAACAATTCC
AGGCACCAGAGGCAAACTTAAAGCTTAAAATGCTAAATAAAGCCAGCTGCCAAAAAGGCCAAGCTGGTGGTTACAGCTGTTTACCA
TCATGCAACAAAAATATAAAATCT
(SEQ ID NO: 4684)

4685,AI034360,,20,267,AGATTTTATATTTTTGTTGC,,
4686,AI034360,,20,261,TATATTTTTGTTGCATGATG,,
4687,AI034360,,20,255,TTTGTTGCATGATGGTAAAC,,
4688,AI034360,,20,249,GCATGATGGTAAACAGCTGT,,
4689,AI034360,,20,243,TGGTAAACAGCTGTAACCAC,,
4690,AI034360,,20,237,ACAGCTGTAACCACCAGCTT,,
4691,AI034360,,20,231,GTAACCACCAGCTTGGCCTT,,
4692,AI034360,,20,225,ACCAGCTTGGCCTTTTTGGC,,
4693,AI034360,,20,219,TTGGCCTTTTTGGCAGCTGG,,
4694,AI034360,,20,213,TTTTTGGCAGCTGGCTTTAT,,
4695,AI034360,,20,207,GCAGCTGGCTTTATTTAGCA,,
4696,AI034360,,20,201,GGCTTTATTTAGCATTTTAA,,
4697,AI034360,,20,195,ATTTAGCATTTTAAGCTTTA,,
4698,AI034360,,20,189,CATTTTAAGCTTTAAGTTTG,,
4699,AI034360,,20,183,AAGCTTTAAGTTTGCCTCTG,,
4700,AI034360,,20,177,TAAGTTTGCCTCTGGTGCCT,,
4701,AI034360,,20,171,TGCCTCTGGTGCCTGGAATT,,
4702,AI034360,,20,165,TGGTGCCTGGAATTGTTCAA,,
4703,AI034360,,20,159,CTGGAATTGTTCAATTAAAA,,
4704,AI034360,,20,153,TTGTTCAATTAAAATTTTAA,,
4705,AI034360,,20,147,AATTAAAATTTTAAATTTAT,,
4706,AI034360,,20,141,AATTTTAAATTTATTCTTAT,,
4707,AI034360,,20,135,AAATTTATTCTTATCATCCT,,
4708,AI034360,,20,129,ATTCTTATCATCCTCTAACA,,
4709,AI034360,,20,123,ATCATCCTCTAACACAAAGC,,
4710,AI034360,,20,117,CTCTAACACAAAGCTTACTT,,
4711,AI034360,,20,111,CACAAAGCTTACTTATACAA,,
4712,AI034360,,20,105,GCTTACTTATACAATACCAA,,
4713,AI034360,,20,99,TTATACAATACCAAATCTAG,,
4714,AI034360,,20,93,AATACCAAATCTAGCCTGAG,,
4715,AI034360,,20,87,AAATCTAGCCTGAGACACTT,,
4716,AI034360,,20,81,AGCCTGAGACACTTGTTCTT,,
4717,AI034360,,20,75,AGACACTTGTTCTTGAATCG,,
4718,AI034360,,20,69,TTGTTCTTGAATCGATTCTT,,
4719,AI034360,,20,63,TTGAATCGATTCTTTTTTAA,,
4720,AI034360,,20,57,CGATTCTTTTTTAAATAATA,,
4721,AI034360,,20,51,TTTTTTAAATAATAAGTTCA,,
4722,AI034360,,20,45,AAATAATAAGTTCAATATGA,,
4723,AI034360,,20,39,TAAGTTCAATATGAAATAAA,,
4724,AI034360,,20,33,CAATATGAAATAAATCTATT,,
4725,AI034360,,20,27,GAAATAAATCTATTCTGCTA,,
4726,AI034360,,20,21,AATCTATTCTGCTACAACAA,,
4727,AI034360,,20,15,TTCTGCTACAACAACCAAAA,,
4728,AI034360,,20,9,TACAACAACCAAAAAAAAAA,,
4729,AI034360,,20,3,AACCAAAAAAAAAAAAAAAA,,
(GENBANK ACCESSION NO. AA465687)
TTTTTTTTTTTTTTTTTTTTTTTTAAAATTTCAGATGTTTTTTATTCAAAGGTTCTCAAAAGAAATAAAACAGAAAAGCTAACAATCTGA
TCAAATGTACAGTTCAAAAATGTCTTTGGCGTTTAACAACAAGTCCTAGGAAAGAAAACTACAGAGTTATCTTGAACCGGACAAA
TAAGTTACCACTGGCAAGTCTGTGGCACTAGTAAAACAAAAATAAAAAATTAACTCTCTTGATCATATAGATATCTCTATGAAAATC
TTTTTTTTTCAATCTGTACAAAAGGTCTTTCTTCATAAATTAATTTTTTTATAATTTAATGGCTGTCTACTATGTGATGTTTAACTGATT
TTTTTTTTTTTATGT
(SEQ ID NO: 4730)

4731,AA465687,,20,348,ACATAAAAAAAAAAAAAATCA,,
4732,AA465687,,20,342,AAAAAAAAAAAATCAGTTAAA,,
4733,AA465687,,20,336,AAAAATCAGTTAAACATCAC,,
4734,AA465687,,20,330,CAGTTAAACATCACATAGTA,,
4735,AA465687,,20,324,AACATCACATAGTAGACAGC,,
4736,AA465687,,20,318,ACATAGTAGACAGCCATTAA,,
4737,AA465687,,20,312,TAGACAGCCATTAAATTATA,,
4738,AA465687,,20,306,GCCATTAAATTATAAAAAAA,,
4739,AA465687,,20,300,AAATTATAAAAAAATTAATT,,
4740,AA465687,,20,294,TAAAAAAATTAATTTATGAA,,
4741,AA465687,,20,288,AATTAATTTATGAAGAAAGA,,
4742,AA465687,,20,282,TTTATGAAGAAAGACCTTTT,,
4743,AA465687,,20,276,AAGAAAGACCTTTTGTACAG,,
4744,AA465687,,20,270,GACCTTTTGTACAGATTGAA,,
4745,AA465687,,20,264,TTGTACAGATTGAAAAAAAA,,
4746,AA465687,,20,258,AGATTGAAAAAAAAAGATTT,,
4747,AA465687,,20,252,AAAAAAAAAGATTTTCATAG,,
4748,AA465687,,20,246,AAAGATTTTCATAGAGATAT,,
4749,AA465687,,20,240,TTTCATAGAGATATCTATAT,,
4750,AA465687,,20,234,AGAGATATCTATATGATCAA,,
4751,AA465687,,20,228,ATCTATATGATCAAGAGAGT,,
4752,AA465687,,20,222,ATGATCAAGAGAGTTAATTT,,
4753,AA465687,,20,216,AAGAGAGTTAATTTTTTATT,,
4754,AA465687,,20,210,GTTAATTTTTTATTTTTGTT,,
4755,AA465687,,20,204,TTTTTATTTTTGTTTTACTA,,
4756,AA465687,,20,198,TTTTTGTTTTACTAGTGCCA,,
4757,AA465687,,20,192,TTTTACTAGTGCCACAGACT,,
4758,AA465687,,20,186,TAGTGCCACAGACTTGCCAG,,
4759,AA465687,,20,180,CACAGACTTGCCAGTGGTAA,,
4760,AA465687,,20,174,CTTGCCAGTGGTAACTTATT,,
4761,AA465687,,20,168,AGTGGTAACTTATTTGTCCG,,
4762,AA465687,,20,162,AACTTATTTGTCCGGTTCAA,,
4763,AA465687,,20,156,TTTGTCCGGTTCAAGATAAC,,
4764,AA465687,,20,150,CGGTTCAAGATAACTCTGTA,,
4765,AA465687,,20,144,AAGATAACTCTGTAGTTTTC,,
4766,AA465687,,20,138,ACTCTGTAGTTTTCTTTCCT,,
4767,AA465687,,20,132,TAGTTTTCTTTCCTAGGACT,,
4768,AA465687,,20,126,TCTTTCCTAGGACTTGTTGT,,
4769,AA465687,,20,120,CTAGGACTTGTTGTTAAACG,,
4770,AA465687,,20,114,CTTGTTGTTAAACGCCAAAA,,
4771,AA465687,,20,108,GTTAAACGCCAAAAGACATT,,
4772,AA465687,,20,102,CGCCAAAAGACATTTTTGAA,,
4773,AA465687,,20,96,AAGACATTTTTGAACTGTAC,,
4774,AA465687,,20,90,TTTTTGAACTGTACATTTGA,,
4775,AA465687,,20,84,AACTGTACATTTGATCAGAT,,
4776,AA465687,,20,78,ACATTTGATCAGATTGTTAG,,
4777,AA465687,,20,72,GATCAGATTGTTAGCTTTTC,,
4778,AA465687,,20,66,ATTGTTAGCTTTTCTGTTTT,,
4779,AA465687,,20,60,AGCTTTTCTGTTTTATTTCT,,
4780,AA465687,,20,54,TCTGTTTTATTTCTTTTGAG,,
4781,AA465687,,20,48,TTATTTCTTTTGAGAACCTT,,
4782,AA465687,,20,42,CTTTTGAGAACCTTTGAATA,,
4783,AA465687,,20,36,AGAACCTTTGAATAAAAAAC,,
4784,AA465687,,20,30,TTTGAATAAAAAACATCTGA,,
4785,AA465687,,20,24,TAAAAAACATCTGAAATTTT,,
4786,AA465687,,20,18,ACATCTGAAATTTTAAAAAA,,
4787,AA465687,,20,12,GAAATTTTAAAAAAAAAAAA,,
4788,AA465687,,20,6,TTAAAAAAAAAAAAAAAAAA,,
(GENBANK ACCESSION NO. AI085559)
TCGAGACAGACAACCTCAAAATAAGGTCCAAATATTGGTTCCTTCAAATGGTGTCAAAAAGAATAGTATTATATGAGGAGGATAGT
TATCACAGAATAAGAACTAAAATCCCATTTTTTTTTTTTAGGAAAAAAAGACCTTCGATGATGCAGGTGTCTGTGTATAAGGAACTA
TGACCTACCAAAAAAACCACCACATAAGGAGAGGCCAATATAATTTGCCAGTCTGACAAGACAGTTGGTATTATAAGTGGAAGAGA
CTTCAAGGATCACATAATTCAGCTCTTTGATTTTAGAGGGAGGAAAGACGAGGCCCAGAGATGGGAAGTGGCTTGCCTAAGTACAT
TAGCAAGTTAGCTTCAATGGTTATTTTTATACACACACAGGCACACATACATACTG
(SEQ ID NO: 4789)

4790,AI085559,,20,382,CAGTATGTATGTGTGCCTGT,,
4791,AI085559,,20,376,GTATGTGTGCCTGTGTGTGT,,
4792,AI085559,,20,370,GTGCCTGTGTGTGTGTATAAAA,,
4793,AI085559,,20,364,GTGTGTGTATAAAAATAACC,,
4794,AI085559,,20,358,GTATAAAAATAACCATTGAA,,
4795,AI085559,,20,352,AAATAACCATTGAAGCTAAC,,
4796,AI085559,,20,346,CCATTGAAGCTAACTTGCTA,,
4797,AI085559,,20,340,AAGCTAACTTGCTAATGTAC,,

4798,AI085559,,20,334,ACTTGCTAATGTACTTAGGC,,
4799,AI085559,,20,328,TAATGTACTTAGGCAAGCCA,,
4800,AI085559,,20,322,ACTTAGGCAAGCCACTTCCC,,
4801,AI085559,,20,316,GCAAGCCACTTCCCATCTCT,,
4802,AI085559,,20,310,CACTTCCCATCTCTGGGCCT,,
4803,AI085559,,20,304,CCATCTCTGGGCCTCGTCTT,,
4804,AI085559,,20,298,CTGGGCCTCGTCTTTCCTCC,,
4805,AI085559,,20,292,CTCGTCTTTCCTCCCTCTAA,,
4806,AI085559,,20,286,TTTCCTCCCTCTAAAATCAA,,
4807,AI085559,,20,280,CCCTCTAAAATCAAAGAGCT,,
4808,AI085559,,20,274,AAAATCAAAGAGCTGAATTA,,
4809,AI085559,,20,268,AAAGAGCTGAATTATGTGAT,,
4810,AI085559,,20,262,CTGAATTATGTGATCCTTGA,,
4811,AI085559,,20,256,TATGTGATCCTTGAAGTCTC,,
4812,AI085559,,20,250,ATCCTTGAAGTCTCTTCCAC,,
4813,AI085559,,20,244,GAAGTCTCTTCCACTTATAA,,
4814,AI085559,,20,238,TCTTCCACTTATAATACCAA,,
4815,AI085559,,20,232,ACTTATAATACCAACTGTCT,,
4816,AI085559,,20,226,AATACCAACTGTCTTGTCAG,,
4817,AI085559,,20,220,AACTGTCTTGTCAGACTGGC,,
4818,AI085559,,20,214,CTTGTCAGACTGGCAAATTA,,
4819,AI085559,,20,208,AGACTGGCAAATTATATTGG,,
4820,AI085559,,20,202,GCAAATTATATTGGCCTCTC,,
4821,AI085559,,20,196,TATATTGGCCTCTCCTTATG,,
4822,AI085559,,20,190,GGCCTCTCCTTATGTGGTGG,,
4823,AI085559,,20,184,TCCTTATGTGGTGGTTTTTT,,
4824,AI085559,,20,178,TGTGGTGGTTTTTTGGTAG,,
4825,AI085559,,20,172,GGTTTTTTTGGTAGGTCATA,,
4826,AI085559,,20,166,TTTGGTAGGTCATAGTTCCT,,
4827,AI085559,,20,160,AGGTCATAGTTCCTTATACA,,
4828,AI085559,,20,154,TAGTTCCTTATACACAGACA,,
4829,AI085559,,20,148,CTTATACACAGACACCTGCA,,
4830,AI085559,,20,142,CACAGACACCTGCATCATCG,,
4831,AI085559,,20,136,CACCTGCATCATCGAAGGTC,,
4832,AI085559,,20,130,CATCATCGAAGGTCTTTTTT,,
4833,AI085559,,20,124,CGAAGGTCTTTTTTTCCTAA,,
4834,AI085559,,20,118,TCTTTTTTTCCTAAAAAAAA,,
4835,AI085559,,20,112,TTTCCTAAAAAAAAAAAATG,,
4836,AI085559,,20,106,AAAAAAAAAAAATGGGATTT,,
4837,AI085559,,20,100,AAAAAATGGGATTTTAGTTC,,
4838,AI085559,,20,94,TGGGATTTTAGTTCTTATTC,,
4839,AI085559,,20,88,TTTAGTTCTTATTCTGTGAT,,
4840,AI085559,,20,82,TCTTATTCTGTGATAACTAT,,
4841,AI085559,,20,76,TCTGTGATAACTATCCTCCT,,
4842,AI085559,,20,70,ATAACTATCCTCCTCATATA,,
4843,AI085559,,20,64,ATCCTCCTCATATAATACTA,,
4844,AI085559,,20,58,CTCATATAATACTATTCTTT,,
4845,AI085559,,20,52,TAATACTATTCTTTTTGACA,,
4846,AI085559,,20,46,TATTCTTTTTGACACCATTT,,
4847,AI085559,,20,40,TTTTGACACCATTTGAAGGA,,
4848,AI085559,,20,34,CACCATTTGAAGGAACCAAT,,
4849,AI085559,,20,28,TTGAAGGAACCAATATTTGG,,
4850,AI085559,,20,22,GAACCAATATTTGGACCTTA,,
4851,AI085559,,20,16,ATATTTGGACCTTATTTTGA,,
4852,AI085559,,20,10,GGACCTTATTTTGAGGTTGT,,
4853,AI085559,,20,4,TATTTTGAGGTTGTCTGTCT,,
(GENBANK ACCESSION NO. AI654215)
TTTTTTTTNTTTTTTTTTTTTTTTTTTTGATGTTTCCCAGTACCACTTCAGCCTTGCCGGCTGCGTAAACTTTTGCTGTATCGAAAAGGTT
GATGCCATTATCATAGGCCAAGGTCATGAGCTGCTCTGCCATCTCATCGGTGATCTGGCCTCCGAAGGTCACCCATGTTCCAAGTCC
CAGGCAGGAAACCCGCAGGCCAAACTTGCCCAGGTTCCTGTAAATCATCCCGGGGGAGCCCGTCTGCCGCAGCGAGAGCCGAGCCG
GGGAGCCCGTCGTTGATTCTGGATACATGGAGCCAGCCTCACTTATCCAGACTTGCTCGGTTTTTTACAGGGGGAAAATTCTGCTCC
TGAACGGGAACGACCGGAGACAAGGCCATTTTCCGAGCACTCAGGGGAACGCCAGGTCAC
(SEQ ID NO: 4854)

4855,AI654215,,20,391,GTGACCTGGCGTTCCCCTGA,,
4856,AI654215,,20,385,TGGCGTTCCCCTGAGTGCTC,,
4857,AI654215,,20,379,TCCCCTGAGTGCTCGGAAAA,,
4858,AI654215,,20,373,GAGTGCTCGGAAAATGGCCT,,
4859,AI654215,,20,367,TCGGAAAATGGCCTTGTCTC,,
4860,AI654215,,20,361,AATGGCCTTGTCTCCGGTCG,,
4861,AI654215,,20,355,CTTGTCTCCGGTCGTTCCCG,,
4862,AI654215,,20,349,TCCGGTCGTTCCCGTTCAGG,,
4863,AI654215,,20,343,CGTTCCCGTTCAGGAGCAGA,,
4864,AI654215,,20,337,CGTTCAGGAGCAGAATTTTC,,
4865,AI654215,,20,331,GGAGCAGAATTTTCCCCCTG,,

4866,AI654215,,20,325,GAATTTTCCCCCTGTAAAAA,,
4867,AI654215,,20,319,TCCCCCTGTAAAAAACCGAG,,
4868,AI654215,,20,313,TGTAAAAAACCGAGCAAGTC,,
4869,AI654215,,20,307,AAACCGAGCAAGTCTGGATA,,
4870,AI654215,,20,301,AGCAAGTCTGGATAAGTGAG,,
4871,AI654215,,20,295,TCTGGATAAGTGAGGCTGGC,,
4872,AI654215,,20,289,TAAGTGAGGCTGGCTCCATG,,
4873,AI654215,,20,283,AGGCTGGCTCCATGTATCCA,,
4874,AI654215,,20,277,GCTCCATGTATCCAGAATCA,,
4875,AI654215,,20,271,TGTATCCAGAATCAACGACG,,
4876,AI654215,,20,265,CAGAATCAACGACGGGCTCC,,
4877,AI654215,,20,259,CAACGACGGGCTCCCCGGCT,,
4878,AI654215,,20,253,CGGGCTCCCCGGCTCGGCTC,,
4879,AI654215,,20,247,CCCCGGCTCGGCTCTCGCTG,,
4880,AI654215,,20,241,CTCGGCTCTCGCTGCGGCAG,,
4881,AI654215,,20,235,TCTCGCTGCGGCAGACGGGC,,
4882,AI654215,,20,229,TGCGGCAGACGGGCTCCCCC,,
4883,AI654215,,20,223,AGACGGGCTCCCCCGGGATG,,
4884,AI654215,,20,217,GCTCCCCCGGGATGATTTAC,,
4885,AI654215,,20,211,CCGGGATGATTTACAGGAAC,,
4886,AI654215,,20,205,TGATTTACAGGAACCTGGGC,,
4887,AI654215,,20,199,ACAGGAACCTGGGCAAGTTT,,
4888,AI654215,,20,193,ACCTGGGCAAGTTTGGCCTG,,
4889,AI654215,,20,187,GCAAGTTTGGCCTGCGGGTT,,
4890,AI654215,,20,181,TTGGCCTGCGGGTTTCCTGC,,
4891,AI654215,,20,175,TGCGGGTTTCCTGCCTGGGA,,
4892,AI654215,,20,169,TTTCCTGCCTGGGACTTGGA,,
4893,AI654215,,20,163,GCCTGGGACTTGGAACATGG,,
4894,AI654215,,20,157,GACTTGGAACATGGGTGACC,,
4895,AI654215,,20,151,GAACATGGGTGACCTTCGGA,,
4896,AI654215,,20,145,GGGTGACCTTCGGAGGCCAG,,
4897,AI654215,,20,139,CCTTCGGAGGCCAGATCACC,,
4898,AI654215,,20,133,GAGGCCAGATCACCGATGAG,,
4899,AI654215,,20,127,AGATCACCGATGAGATGGCA,,
4900,AI654215,,20,121,CCGATGAGATGGCAGAGCAG,,
4901,AI654215,,20,115,AGATGGCAGAGCAGCTCATG,,
4902,AI654215,,20,109,CAGAGCAGCTCATGACCTTG,,
4903,AI654215,,20,103,AGCTCATGACCTTGGCCTAT,,
4904,AI654215,,20,97,TGACCTTGGCCTATGATAAT,,
4905,AI654215,,20,91,TGGCCTATGATAATGGCATC,,
4906,AI654215,,20,85,ATGATAATGGCATCAACCTT,,
4907,AI654215,,20,79,ATGGCATCAACCTTTTCGAT,,
4908,AI654215,,20,73,TCAACCTTTTCGATACAGCA,,
4909,AI654215,,20,67,TTTTCGATACAGCAAAAGTT,,
4910,AI654215,,20,61,ATACAGCAAAAGTTTACGCA,,
4911,AI654215,,20,55,CAAAAGTTTACGCAGCCGGC,,
4912,AI654215,,20,49,TTTACGCAGCCGGCAAGGCT,,
4913,AI654215,,20,43,CAGCCGGCAAGGCTGAAGTG,,
4914,AI654215,,20,37,GCAAGGCTGAAGTGGTACTG,,
4915,AI654215,,20,31,CTGAAGTGGTACTGGGAAAC,,
4916,AI654215,,20,25,TGGTACTGGGAAACATCAAA,,
4917,AI654215,,20,19,TGGGAAACATCAAAAAAAAA,,
4918,AI654215,,20,13,ACATCAAAAAAAAAAAAAAA,,
4919,AI654215,,20,7,AAAAAAAAAAAAAAAAANAA,,
4920,AI654215,,20,1,AAAAAAAAAAANAAAAAAAA,,
(GENBANK ACCESSION NO. AA505075)
TTTTTTTTTTTTTTTTTTTTTTTTTTTTTTTTTTTTTTTTTAAAATAACAACAAAATGTATTTAAAAACAGACTTCTCCAGTTGGCATTTTGAAT
GAAATTGCTAACAACTCCAACCCTCTATATTGTGTTTCTTTTGCTCCTGGAGTCCTCTTGCAGCTTTAATTCTTGAAACTCAGGCGGC
(SEQ ID NO: 4921)

4922,AA505075,,20,159,GCCGCCTGAGTTTCAAGAAT,,
4923,AA505075,,20,153,TGAGTTTCAAGAATTAAAGC,,
4924,AA505075,,20,147,TCAAGAATTAAAGCTGCAAG,,
4925,AA505075,,20,141,ATTAAAGCTGCAAGAGGACT,,
4926,AA505075,,20,135,GCTGCAAGAGGACTCCAGGA,,
4927,AA505075,,20,129,AGAGGACTCCAGGAGCAAAA,,
4928,AA505075,,20,123,CTCCAGGAGCAAAAGAAACA,,
4929,AA505075,,20,117,GAGCAAAAGAAACACAATAT,,
4930,AA505075,,20,111,AAGAAACACAATATAGAGGG,,
4931,AA505075,,20,105,CACAATATAGAGGGTTGGAG,,
4932,AA505075,,20,99,ATAGAGGGTTGGAGTTGTTA,,
4933,AA505075,,20,93,GGTTGGAGTTGTTAGCAATT,,
4934,AA505075,,20,87,AGTTGTTAGCAATTTCATTC,,
4935,AA505075,,20,81,TAGCAATTTCATTCAAAATG,,
4936,AA505075,,20,75,TTTCATTCAAAATGCCAACT,,

4937,AA505075,,20,69,TCAAAATGCCAACTGGAGAA,,
4938,AA505075,,20,63,TGCCAACTGGAGAAGTCTGT,,
4939,AA505075,,20,57,CTGGAGAAGTCTGTTTTTAA,,
4940,AA505075,,20,51,AAGTCTGTTTTTAAATACAT,,
4941,AA505075,,20,45,GTTTTTAAATACATTTTGTT,,
4942,AA505075,,20,39,AAATACATTTTGTTGTTATT,,
4943,AA505075,,20,33,ATTTTGTTGTTATTTTAAAA,,
4944,AA505075,,20,27,TTGTTATTTTAAAAAAAAAA,,
4945,AA505075,,20,21,TTTTAAAAAAAAAAAAAAAA,,
4946,AA505075,,20,15,AAAAAAAAAAAAAAAAAAAA,,
4947,AA505075,,20,9,AAAAAAAAAAAAAAAAAAAA,,
4948,AA505075,,20,3,AAAAAAAAAAAAAAAAAAAA,,
(GENBANK ACCESSION NO. AA906703)
TGAATTATGACAGAAATCTTTATTAAAATGTGTCTTTCAGTAATATGTTTAGCATTCAATATACACACATACATATGTACACTCTTTG
ACACGCCTCATGGATTGCTGCCATCAGTTTAACTAATAAATTAAAACTAAAAAGAGGGATGTGAGGGGAGGGGAACTAACGGCAAA
CTTTTCATGTTTTATCTGGTAAGAAATTGTGAATTTCTCAGAATTTCCCTGGGCAAAAACCTGTGACCAGAGAATCTGTGAAATAAA
ATACATAAATCTCTACCCCTTGGAAAAAAAAAAAAAAAAAATTCCAAAAGATGCAGTTACAAGTGTGCTTCTCAGAACAGGAGCATT
CATTCCACTTCATACTCTGGCT
(SEQ ID NO: 4949)

4950,AA906703,,20,350,AGCCAGAGTATGAAGTGGAA,,
4951,AA906703,,20,344,AGTATGAAGTGGAATGAATG,,
4952,AA906703,,20,338,AAGTGGAATGAATGCTCCTG,,
4953,AA906703,,20,332,AATGAATGCTCCTGTTCTGA,,
4954,AA906703,,20,326,TGCTCCTGTTCTGAGAAGCA,,
4955,AA906703,,20,320,TGTTCTGAGAAGCACACTTG,,
4956,AA906703,,20,314,GAGAAGCACACTTGTAACTG,,
4957,AA906703,,20,308,CACACTTGTAACTGCATCTT,,
4958,AA906703,,20,302,TGTAACTGCATCTTTTGGAA,,
4959,AA906703,,20,296,TGCATCTTTTGGAATTTTTT,,
4960,AA906703,,20,290,TTTTGGAATTTTTTTTTTTT,,
4961,AA906703,,20,284,AATTTTTTTTTTTTTTTTTC,,
4962,AA906703,,20,278,TTTTTTTTTTTTTTCCAAGGG,,
4963,AA906703,,20,272,TTTTTTTCCAAGGGGTAGAG,,
4964,AA906703,,20,266,TCCAAGGGGTAGAGATTTAT,,
4965,AA906703,,20,260,GGGTAGAGATTTATGTATTT,,
4966,AA906703,,20,254,AGATTTATGTATTTTATTTC,,
4967,AA906703,,20,248,ATGTATTTTATTTCACAGAT,,
4968,AA906703,,20,242,TTTATTTCACAGATTCTCTG,,
4969,AA906703,,20,236,TCACAGATTCTCTGGTCACA,,
4970,AA906703,,20,230,ATTCTCTGGTCACAGGTTTT,,
4971,AA906703,,20,224,TGGTCACAGGTTTTTGCCCA,,
4972,AA906703,,20,218,CAGGTTTTTGCCCAGGGAAA,,
4973,AA906703,,20,212,TTTGCCCAGGGAAATTCTGA,,
4974,AA906703,,20,206,CAGGGAAATTCTGAGAAATT,,
4975,AA906703,,20,200,AATTCTGAGAAATTCACAAT,,
4976,AA906703,,20,194,GAGAAATTCACAATTTCTTA,,
4977,AA906703,,20,188,TTCACAATTTCTTACCAGAT,,
4978,AA906703,,20,182,ATTTCTTACCAGATAAAACA,,
4979,AA906703,,20,176,TACCAGATAAAACATGAAAA,,
4980,AA906703,,20,170,ATAAAACATGAAAAGTTTGC,,
4981,AA906703,,20,164,CATGAAAAGTTTGCCGTTAG,,
4982,AA906703,,20,158,AAGTTTGCCGTTAGTTCCCC,,
4983,AA906703,,20,152,GCCGTTAGTTCCCCTCCCCT,,
4984,AA906703,,20,146,AGTTCCCCTCCCCTCACATC,,
4985,AA906703,,20,140,CCTCCCCTCACATCCCTCTT,,
4986,AA906703,,20,134,CTCACATCCCTCTTTTTAGT,,
4987,AA906703,,20,128,TCCCTCTTTTTAGTTTTAAT,,
4988,AA906703,,20,122,TTTTTAGTTTTAATTTATTA,,
4989,AA906703,,20,116,GTTTTAATTTATTAGTTAAA,,
4990,AA906703,,20,110,ATTTATTAGTTAAACTGATG,,
4991,AA906703,,20,104,TAGTTAAACTGATGGCAGCA,,
4992,AA906703,,20,98,AACTGATGGCAGCAATCCAT,,
4993,AA906703,,20,92,TGGCAGCAATCCATGAGGCG,,
4994,AA906703,,20,86,CAATCCATGAGGCGTGTCAA,,
4995,AA906703,,20,80,ATGAGGCGTGTCAAAGAGTG,,
4996,AA906703,,20,74,CGTGTCAAAGAGTGTACATA,,
4997,AA906703,,20,68,AAAGAGTGTACATATGTATG,,
4998,AA906703,,20,62,TGTACATATGTATGTGTGTA,,
4999,AA906703,,20,56,TATGTATGTGTGTATATTGA,,
5000,AA906703,,20,50,TGTGTGTATATTGAATGCTA,,
5001,AA906703,,20,44,TATATTGAATGCTAAACATA,,
5002,AA906703,,20,38,GAATGCTAAACATATTACTG,,
5003,AA906703,,20,32,TAAACATATTACTGAAAGAC,,
5004,AA906703,,20,26,TATTACTGAAAGACACATTT,,

5005,AA906703,,20,20,TGAAAGACACATTTTAATAA,,
5006,AA906703,,20,14,ACACATTTTAATAAAGATTT,,
5007,AA906703,,20,8,TTTAATAAAGATTTCTGTCA,,
5008,AA906703,,20,2,AAAGATTTCTGTCATAATTC,,
(GENBANK ACCESSION NO. AI369870)
GGCCCGCGGGGAGCGCGGCGCAATTCGTCGGCCCGCGGGGGGGCGGCCTCCCGGCATCTTCGCGGCGACCAAGGACTACCAGGAA
GGGGAGCGGCTGGGATGGCGCGTCCGCGGCCCCGCGAGTACAAAGCGGGCGACCTGGTCTTCGCCAAGATGAAGGGCTACCCGCA
CTGGCCGGCCCGGATTGATGAACTCCCAGAGGGCGCTGTGAAGCCTCCAGCAAACAAGTATCCTATCTTCTTTTTGGCACCCATGA
AACTGCATTTCTAGGTCCCAAAGACCTTTTTCCATATAAGGAGTACAAAGACAAGTTTGGAAAGTCAAACAAACGGAAAGGATTTA
ACGAAGGATTGTGGGAAATAGAAAATAACCCAGGAGTAAAGTTTACTGGCTACCAGGCAATTCAGCAACAGAGCTCTTCAGAAACT
GAGGGAGAAGGTGGAAATACTGCAGATGCAAGCAGTGA
(SEQ ID NO: 5009)

5010,AI369870,,20,448,TCACTGCTTGCATCTGCAGT,,
5011,AI369870,,20,442,CTTGCATCTGCAGTATTTCC,,
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5013,AI369870,,20,430,GTATTTCCACCTTCTCCCTC,,
5014,AI369870,,20,424,CCACCTTCTCCCTCAGTTTC,,
5015,AI369870,,20,418,TCTCCCTCAGTTTCTGAAGA,,
5016,AI369870,,20,412,TCAGTTTCTGAAGAGCTCTG,,
5017,AI369870,,20,406,TCTGAAGAGCTCTGTTGCTG,,
5018,AI369870,,20,400,GAGCTCTGTTGCTGAATTGC,,
5019,AI369870,,20,394,TGTTGCTGAATTGCCTGGTA,,
5020,AI369870,,20,388,TGAATTGCCTGGTAGCCAGT,,
5021,AI369870,,20,382,GCCTGGTAGCCAGTAAACTT,,
5022,AI369870,,20,376,TAGCCAGTAAACTTTACTCC,,
5023,AI369870,,20,370,GTAAACTTTACTCCTGGGTT,,
5024,AI369870,,20,364,TTTACTCCTGGGTTATTTTC,,
5025,AI369870,,20,358,CCTGGGTTATTTTCTATTTC,,
5026,AI369870,,20,352,TTATTTTCTATTTCCCACAA,,
5027,AI369870,,20,346,TCTATTTCCCACAATCCTTC,,
5028,AI369870,,20,340,TCCCACAATCCTTCGTTAAA,,
5029,AI369870,,20,334,AATCCTTCGTTAAATCCTTT,,
5030,AI369870,,20,328,TCGTTAAATCCTTTCCGTTT,,
5031,AI369870,,20,322,AATCCTTTCCGTTTGTTTGA,,
5032,AI369870,,20,316,TTCCGTTTGTTTGACTTTCC,,
5033,AI369870,,20,310,TTGTTTGACTTTCCAAACTT,,
5034,AI369870,,20,304,GACTTTCCAAACTTGTCTTT,,
5035,AI369870,,20,298,CCAAACTTGTCTTTGTACTC,,
5036,AI369870,,20,292,TTGTCTTTGTACTCCTTATA,,
5037,AI369870,,20,286,TTGTACTCCTTATATGGAAA,,
5038,AI369870,,20,280,TCCTTATATGGAAAAAGGTC,,
5039,AI369870,,20,274,TATGGAAAAAGGTCTTTGGG,,
5040,AI369870,,20,268,AAAAGGTCTTTGGGACCTAG,,
5041,AI369870,,20,262,TCTTTGGGACCTAGAAATGC,,
5042,AI369870,,20,256,GGACCTAGAAATGCAGTTTC,,
5043,AI369870,,20,250,AGAAATGCAGTTTCATGGGT,,
5044,AI369870,,20,244,GCAGTTTCATGGGTGCCAAA,,
5045,AI369870,,20,238,TCATGGGTGCCAAAAAAGAA,,
5046,AI369870,,20,232,GTGCCAAAAAAGAAGATAGG,,
5047,AI369870,,20,226,AAAAAGAAGATAGGATACTT,,
5048,AI369870,,20,220,AAGATAGGATACTTGTTTGC,,
5049,AI369870,,20,214,GGATACTTGTTTGCTGGAGG,,
5050,AI369870,,20,208,TTGTTTGCTGGAGGCTTCAC,,
5051,AI369870,,20,202,GCTGGAGGCTTCACAGCGCC,,
5052,AI369870,,20,196,GGCTTCACAGCGCCCTCTGG,,
5053,AI369870,,20,190,ACAGCGCCCTCTGGGAGTTC,,
5054,AI369870,,20,184,CCCTCTGGGAGTTCATCAAT,,
5055,AI369870,,20,178,GGGAGTTCATCAATCCGGGC,,
5056,AI369870,,20,172,TCATCAATCCGGGCCGGCCA,,
5057,AI369870,,20,166,ATCCGGGCCGGCCAGTGCGG,,
5058,AI369870,,20,160,GCCGGCCAGTGCGGGTAGCC,,
5059,AI369870,,20,154,CAGTGCGGGTAGCCCTTCAT,,
5060,AI369870,,20,148,GGGTAGCCCTTCATCTTGGC,,
5061,AI369870,,20,142,CCCTTCATCTTGGCGAAGAC,,
5062,AI369870,,20,136,ATCTTGGCGAAGACCAGGTC,,
5063,AI369870,,20,130,GCGAAGACCAGGTCGCCCGC,,
5064,AI369870,,20,124,ACCAGGTCGCCCGCTTTGTA,,
5065,AI369870,,20,118,TCGCCCGCTTTGTACTCGCG,,
5066,AI369870,,20,112,GCTTTGTACTCGCGGGGCCG,,
5067,AI369870,,20,106,TACTCGCGGGGCCGCGGACG,,
5068,AI369870,,20,100,CGGGGCCGCGGACGCGCCAT,,
5069,AI369870,,20,94,CGCGGACGCGCCATCCCAGC,,
5070,AI369870,,20,88,CGCGCCATCCCAGCCGCTCC,,
5071,AI369870,,20,82,ATCCCAGCCGCTCCCCTTCC,,

5072,AI369870,,20,76,GCCGCTCCCCTTCCTGGTAG,,
5073,AI369870,,20,70,CCCCTTCCTGGTAGTCCTTG,,
5074,AI369870,,20,64,CCTGGTAGTCCTTGGTCGCC,,
5075,AI369870,,20,58,AGTCCTTGGTCGCCGCGAAG,,
5076,AI369870,,20,52,TGGTCGCCGCGAAGATGCCG,,
5077,AI369870,,20,46,CCGCGAAGATGCCGGGAGGC,,
5078,AI369870,,20,40,AGATGCCGGGAGGCCGCCCC,,
5079,AI369870,,20,34,CGGGAGGCCGCCCCCCCGCG,,
5080,AI369870,,20,28,GCCGCCCCCCCGCGGGCCGA,,
5081,AI369870,,20,22,CCCCCGCGGGCCGACGAATT,,
5082,AI369870,,20,16,CGGGCCGACGAATTGCGCCG,,
5083,AI369870,,20,10,GACGAATTGCGCCGCGCTCC,,
5084,AI369870,,20,4,TTGCGCCGCGCTCCCCGCGG,,
(GENBANK ACCESSION NO. AA463249)
TTTTTTTTTTTTTTTTTTTTCCTCAAGAAAAAAAGTTTAATAGCAAGGAGTTTCCATCAGTCCCGGTCTTTGTGAGGATTACCACAACA
AACACTTAAAAGGATACAACAGGTACTTATTAAATGCTGCCTTGCCTTTTACCTCTTCCTTTTTTTTTTTTTTTTGAGATGGAGTCTCG
CTCTGCTGCCCAGCCTGAAGTGCAGTGGTGTGATCTCGGCTCACTGCAACCTCCGCCTTCCAGGTTTAGGTGATTCTCTTGCCTCGGC
CTCCCGAGTAGCTGGGATGGACTACAGGCACATGTCACCATGCCCAGCTAATTTTTTGTATTTTTAGTA
(SEQ ID NO: 5085)

5086,AA463249,,20,315,TACTAAAAATACAAAAAATT,,
5087,AA463249,,20,309,AAATACAAAAAATTAGCTGG,,
5088,AA463249,,20,303,AAAAAATTAGCTGGGCATGG,,
5089,AA463249,,20,297,TTAGCTGGGCATGGTGACAT,,
5090,AA463249,,20,291,GGGCATGGTGACATGTGCCT,,
5091,AA463249,,20,285,GGTGACATGTGCCTGTAGTC,,
5092,AA463249,,20,279,ATGTGCCTGTAGTCCATCCC,,
5093,AA463249,,20,273,CTGTAGTCCATCCCAGCTAC,,
5094,AA463249,,20,267,TCCATCCCAGCTACTCGGGA,,
5095,AA463249,,20,261,CCAGCTACTCGGGAGGCCGA,,
5096,AA463249,,20,255,ACTCGGGAGGCCGAGGCAAG,,
5097,AA463249,,20,249,GAGGCCGAGGCAAGAGAATC,,
5098,AA463249,,20,243,GAGGCAAGAGAATCACCTAA,,
5099,AA463249,,20,237,AGAGAATCACCTAAACCTGG,,
5100,AA463249,,20,231,TCACCTAAACCTGGAAGGCG,,
5101,AA463249,,20,225,AAACCTGGAAGGCGGAGGTT,,
5102,AA463249,,20,219,GGAAGGCGGAGGTTGCAGTG,,
5103,AA463249,,20,213,CGGAGGTTGCAGTGAGCCGA,,
5104,AA463249,,20,207,TTGCAGTGAGCCGAGATCAC,,
5105,AA463249,,20,201,TGAGCCGAGATCACACCACT,,
5106,AA463249,,20,195,GAGATCACACCACTGCACTT,,
5107,AA463249,,20,189,ACACCACTGCACTTCAGGCT,,
5108,AA463249,,20,183,CTGCACTTCAGGCTGGGCAG,,
5109,AA463249,,20,177,TTCAGGCTGGGCAGCAGAGC,,
5110,AA463249,,20,171,CTGGGCAGCAGAGCGAGACT,,
5111,AA463249,,20,165,AGCAGAGCGAGACTCCATCT,,
5112,AA463249,,20,159,GCGAGACTCCATCTCAAAAA,,
5113,AA463249,,20,153,CTCCATCTCAAAAAAAAAAA,,
5114,AA463249,,20,147,CTCAAAAAAAAAAAAAAAAG,,
5115,AA463249,,20,141,AAAAAAAAAAAAAAGGAAGAG,,
5116,AA463249,,20,135,AAAAAAAGGAAGAGGTAAAA,,
5117,AA463249,,20,129,AGGAAGAGGTAAAAGGCAAG,,
5118,AA463249,,20,123,AGGTAAAAGGCAAGGCAGCA,,
5119,AA463249,,20,117,AAGGCAAGGCAGCATTTAAT,,
5120,AA463249,,20,111,AGGCAGCATTTAATAAGTAC,,
5121,AA463249,,20,105,CATTTAATAAGTACCTGTTG,,
5122,AA463249,,20,99,ATAAGTACCTGTTGTATCCT,,
5123,AA463249,,20,93,ACCTGTTGTATCCTTTTAAG,,
5124,AA463249,,20,87,TGTATCCTTTTAAGTGTTTG,,
5125,AA463249,,20,81,CTTTTAAGTGTTTGTTGTGG,,
5126,AA463249,,20,75,AGTGTTTGTTGTGGTAATCC,,
5127,AA463249,,20,69,TGTTGTGGTAATCCTCACAA,,
5128,AA463249,,20,63,GGTAATCCTCACAAAGACCG,,
5129,AA463249,,20,57,CCTCACAAAGACCGGGACTG,,
5130,AA463249,,20,51,AAAGACCGGGACTGATGGAA,,
5131,AA463249,,20,45,CGGGACTGATGGAAACTCCT,,
5132,AA463249,,20,39,TGATGGAAACTCCTTGCTAT,,
5133,AA463249,,20,33,AAACTCCTTGCTATTAAACT,,
5134,AA463249,,20,27,CTTGCTATTAAACTTTTTTT,,
5135,AA463249,,20,21,ATTAAACTTTTTTTCTTGAG,,
5136,AA463249,,20,15,CTTTTTTTCTTGAGGAAAAA,,
5137,AA463249,,20,9,TTCTTGAGGAAAAAAAAAAA,,
5138,AA463249,,20,3,AGGAAAAAAAAAAAAAAAAA,,
(GENBANK ACCESSION NO. R38894)

TTTTTTACAGCATAGCGGTTTATTCATGCCATCATACAGTCGATCTGTATTCTTCAAGTACATTTTGAATTTATAATGAAGACAGTTT AAGGCATAACTCTTCCCACTCAAATCTATGGTCTTTCTCAAGTGAGACACTAGAGAGAGTAGAANGGGAGGNTGAGATAGGGC (SEQ ID NO: 5139)

5140,R38894,,20,152,GCCCTATCTCANCCTCCCNT,,
5141,R38894,,20,146,TCTCANCCTCCCNTTCTACT,,
5142,R38894,,20,140,CCTCCCNTTCTACTCTCTCT,,
5143,R38894,,20,134,NTTCTACTCTCTCTAGTGTC,,
5144,R38894,,20,128,CTCTCTCTAGTGTCTCACTT,,
5145,R38894,,20,122,CTAGTGTCTCACTTGAGAAA,,
5146,R38894,,20,116,TCTCACTTGAGAAAGACCAT,,
5147,R38894,,20,110,TTGAGAAAGACCATAGATTT,,
5148,R38894,,20,104,AAGACCATAGATTTGAGTGG,,
5149,R38894,,20,98,ATAGATTTGAGTGGGAAGAG,,
5150,R38894,,20,92,TTGAGTGGGAAGAGTTATGC,,
5151,R38894,,20,86,GGGAAGAGTTATGCCTTAAA,,
5152,R38894,,20,80,AGTTATGCCTTAAACTGTCT,,
5153,R38894,,20,74,GCCTTAAACTGTCTTCATTA,,
5154,R38894,,20,68,AACTGTCTTCATTATAAATT,,
5155,R38894,,20,62,CTTCATTATAAATTCAAAAT,,
5156,R38894,,20,56,TATAAATTCAAAATGTACTT,,
5157,R38894,,20,50,TTCAAAATGTACTTGAAGAA,,
5158,R38894,,20,44,ATGTACTTGAAGAATACAGA,,
5159,R38894,,20,38,TTGAAGAATACAGATCGACT,,
5160,R38894,,20,32,AATACAGATCGACTGTATGA,,
5161,R38894,,20,26,GATCGACTGTATGATGGCAT,,
5162,R38894,,20,20,CTGTATGATGGCATGAATAA,,
5163,R38894,,20,14,GATGGCATGAATAAACCGCT,,
5164,R38894,,20,8,ATGAATAAACCGCTATGCTG,,
5165,R38894,,20,2,AAACCGCTATGCTGTAAAAA,,
(GENBANK ACCESSION NO. R49144)
TTTTTTTTTTTTTTTGGAGATGACCTGNACTTTTAATGGCACAGCCCCAGCTCCAGCAAAGCAGCAAGACAGGAAGCTATGCAAAGC TGCTCAGAGGTGCAGTGGCCAAACAACTCTAGGAGATCGCCTGTNTTCCCTCCCATCCCCCAAGCTTATGACGTGGCTCCATGCCCA GGGAACTTTGGGCCANCCCANCCCCANTCCCAAACCCTCATAATNCACAGAGGGAGCCTGGGCCAAG
(SEQ ID NO: 5166)

5167,R49144,,20,222,CTTGGCCCAGGCTCCCTCTG,,
5168,R49144,,20,216,CCAGGCTCCCTCTGTGNATT,,
5169,R49144,,20,210,TCCCTCTGTGNATTATGAGG,,
5170,R49144,,20,204,TGTGNATTATGAGGGTTTGG,,
5171,R49144,,20,198,TTATGAGGGTTTGGGANTGG,,
5172,R49144,,20,192,GGGTTTGGGANTGGGGNTGG,,
5173,R49144,,20,186,GGGANTGGGGNTGGGNTGGC,,
5174,R49144,,20,180,GGGGNTGGGNTGGCCCAAAG,,
5175,R49144,,20,174,GGGNTGGCCCAAAGTTCCCT,,
5176,R49144,,20,168,GCCCAAAGTTCCCTGGGCAT,,
5177,R49144,,20,162,AGTTCCCTGGGCATGGAGCC,,
5178,R49144,,20,156,CTGGGCATGGAGCCACGTCA,,
5179,R49144,,20,150,ATGGAGCCACGTCATAAGCT,,
5180,R49144,,20,144,CCACGTCATAAGCTTGGGGG,,
5181,R49144,,20,138,CATAAGCTTGGGGGATGGGA,,
5182,R49144,,20,132,CTTGGGGGATGGGAGGGAAN,,
5183,R49144,,20,126,GGATGGGAGGGAANACAGGC,,
5184,R49144,,20,120,GAGGGAANACAGGCGATCTC,,
5185,R49144,,20,114,ANACAGGCGATCTCCTAGAG,,
5186,R49144,,20,108,GCGATCTCCTAGAGTTGTTT,,
5187,R49144,,20,102,TCCTAGAGTTGTTTGGCCAC,,
5188,R49144,,20,96,AGTTGTTTGGCCACTGCACC,,
5189,R49144,,20,90,TTGGCCACTGCACCTCTGAG,,
5190,R49144,,20,84,ACTGCACCTCTGAGCAGCTT,,
5191,R49144,,20,78,CCTCTGAGCAGCTTTGCATA,,
5192,R49144,,20,72,AGCAGCTTTGCATAGCTTCC,,
5193,R49144,,20,66,TTTGCATAGCTTCCTGTCTT,,
5194,R49144,,20,60,TAGCTTCCTGTCTTGCTGCT,,
5195,R49144,,20,54,CCTGTCTTGCTGCTTTGCTG,,
5196,R49144,,20,48,TTGCTGCTTTGCTGGAGCTG,,
5197,R49144,,20,42,CTTTGCTGGAGCTGGGGCTG,,
5198,R49144,,20,36,TGGAGCTGGGGCTGTGCCAT,,
5199,R49144,,20,30,TGGGGCTGTGCCATTAAAAG,,
5200,R49144,,20,24,TGTGCCATTAAAAGTNCAGG,,
5201,R49144,,20,18,ATTAAAAGTNCAGGTCATCT,,
5202,R49144,,20,12,AGTNCAGGTCATCTCCAAAA,,
5203,R49144,,20,6,GGTCATCTCCAAAAAAAAAA,,
(GENBANK ACCESSION NO. AA398883)

TATGTCACTATTTTATTGATGATGTGTTTTATAGAATCACAAAATTTAGAAACATAAGAAGGATTTAGGTATCACCTAAATTCAAAGAAATGTGTGTTTCTAGGTTGCTAAATTCAAAGAAAAAGTATGATTTGGTTTGGTTCATTTAAAACAGGTCACAAACAGAATTATATTTCAAATTTAGAAGATACGGTATTAAGTGATTCATCTTATTTTGGACATTTTTCCTCAAGGAGAATTTTTCTGGAAGAAAAAGTACATTTATATGTGGGCTTATTAAGAGAAAGAGAGAAAGGCATGCTATTTTAATCATTAAATTCTTGATGATGACGATCATCATCAAGATGAGAAAGAAAAGAAATATGAGCCAAGAGAATCTGTTGTTGCCAGCAATCAGTTTACCAGAACATCTGCAGGTGAACATTTTCCAAATGGAGTGACAGACTAATTGCATCTACGGGGATGAGAATCTGCCATAGAGAGGATGCTGTGGGCTTATTTTGCTTATGTAGATAGGAAGGGTGATACATGGA
(SEQ ID NO: 5204)

5205,AA398883,,20,514,TCCATGTATCACCCTTCCTA,,
5206,AA398883,,20,508,TATCACCCTTCCTATCTACA,,
5207,AA398883,,20,502,CCTTCCTATCTACATAAGCA,,
5208,AA398883,,20,496,TATCTACATAAGCAAAATAA,,
5209,AA398883,,20,490,CATAAGCAAAATAAGCCCAC,,
5210,AA398883,,20,484,CAAAATAAGCCCACAGCATC,,
5211,AA398883,,20,478,AAGCCCACAGCATCCTCTCT,,
5212,AA398883,,20,472,ACAGCATCCTCTCTATGGCA,,
5213,AA398883,,20,466,TCCTCTCTATGGCAGATTCT,,
5214,AA398883,,20,460,CTATGGCAGATTCTCATCCC,,
5215,AA398883,,20,454,CAGATTCTCATCCCCGTAGA,,
5216,AA398883,,20,448,CTCATCCCCGTAGATGCAAT,,
5217,AA398883,,20,442,CCCGTAGATGCAATTAGTCT,,
5218,AA398883,,20,436,GATGCAATTAGTCTGTCACT,,
5219,AA398883,,20,430,ATTAGTCTGTCACTCCATTT,,
5220,AA398883,,20,424,CTGTCACTCCATTTGGAAAA,,
5221,AA398883,,20,418,CTCCATTTGGAAAATGTTCA,,
5222,AA398883,,20,412,TTGGAAAATGTTCACCTGCA,,
5223,AA398883,,20,406,AATGTTCACCTGCAGATGTT,,
5224,AA398883,,20,400,CACCTGCAGATGTTCTGGTA,,
5225,AA398883,,20,394,CAGATGTTCTGGTAAACTGA,,
5226,AA398883,,20,388,TTCTGGTAAACTGATTGCTG,,
5227,AA398883,,20,382,TAAACTGATTGCTGGCAACA,,
5228,AA398883,,20,376,GATTGCTGGCAACAACAGAT,,
5229,AA398883,,20,370,TGGCAACAACAGATTCTCTT,,
5230,AA398883,,20,364,CAACAGATTCTCTTGGCTCA,,
5231,AA398883,,20,358,ATTCTCTTGGCTCATATTTC,,
5232,AA398883,,20,352,TTGGCTCATATTTCTTTTCT,,
5233,AA398883,,20,346,CATATTTCTTTTCTTTCTCA,,
5234,AA398883,,20,340,TCTTTTCTTTCTCATCTTGA,,
5235,AA398883,,20,334,CTTTCTCATCTTGATGATGA,,
5236,AA398883,,20,328,CATCTTGATGATGATCGTCA,,
5237,AA398883,,20,322,GATGATGATCGTCATCATCA,,
5238,AA398883,,20,316,GATCGTCATCATCAAGAATT,,
5239,AA398883,,20,310,CATCATCAAGAATTTAATGA,,
5240,AA398883,,20,304,CAAGAATTTAATGATTAAAA,,
5241,AA398883,,20,298,TTTAATGATTAAAATAGCAT,,
5242,AA398883,,20,292,GATTAAAATAGCATGCCTTT,,
5243,AA398883,,20,286,AATAGCATGCCTTTCTCTCT,,
5244,AA398883,,20,280,ATGCCTTTCTCTCTTTCTCT,,
5245,AA398883,,20,274,TTCTCTCTTTCTCTTAATAA,,
5246,AA398883,,20,268,CTTTCTCTTAATAAGCCCAC,,
5247,AA398883,,20,262,CTTAATAAGCCCACATATAA,,
5248,AA398883,,20,256,AAGCCCACATATAAATGTAC,,
5249,AA398883,,20,250,ACATATAAATGTACTTTTTC,,
5250,AA398883,,20,244,AAATGTACTTTTTCTTCCAG,,
5251,AA398883,,20,238,ACTTTTTCTTCCAGAAAAAT,,
5252,AA398883,,20,232,TCTTCCAGAAAAATTCTCCT,,
5253,AA398883,,20,226,AGAAAAATTCTCCTTGAGGA,,
5254,AA398883,,20,220,ATTCTCCTTGAGGAAAAATG,,
5255,AA398883,,20,214,CTTGAGGAAAAATGTCCAAA,,
5256,AA398883,,20,208,GAAAAATGTCCAAAATAAGA,,
5257,AA398883,,20,202,TGTCCAAAATAAGATGAATC,,
5258,AA398883,,20,196,AAATAAGATGAATCACTTAA,,
5259,AA398883,,20,190,GATGAATCACTTAATACCGT,,
5260,AA398883,,20,184,TCACTTAATACCGTATCTTC,,
5261,AA398883,,20,178,AATACCGTATCTTCTAAATT,,
5262,AA398883,,20,172,GTATCTTCTAAATTTGAAAT,,
5263,AA398883,,20,166,TCTAAATTTGAAATATAATT,,
5264,AA398883,,20,160,TTTGAAATATAATTCTGTTT,,
5265,AA398883,,20,154,ATATAATTCTGTTTGTGACC,,
5266,AA398883,,20,148,TTCTGTTTGTGACCTGTTTT,,
5267,AA398883,,20,142,TTGTGACCTGTTTTAAATGA,,
5268,AA398883,,20,136,CCTGTTTTAAATGAACCAAA,,
5269,AA398883,,20,130,TTAAATGAACCAAACCAAAT,,
5270,AA398883,,20,124,GAACCAAACCAAATCATACT,,

5271,AA398883,,20,118,AACCAAATCATACTTTTTCT,,
5272,AA398883,,20,112,ATCATACTTTTTCTTTGAAT,,
5273,AA398883,,20,106,CTTTTTCTTTGAATTTAGCA,,
5274,AA398883,,20,100,CTTTGAATTTAGCAACCTAG,,
5275,AA398883,,20,94,ATTTAGCAACCTAGAAACAC,,
5276,AA398883,,20,88,CAACCTAGAAACACACATTT,,
5277,AA398883,,20,82,AGAAACACACATTTCTTTGA,,
5278,AA398883,,20,76,ACACATTTCTTTGAATTTAG,,
5279,AA398883,,20,70,TTCTTTGAATTTAGGTGATA,,
5280,AA398883,,20,64,GAATTTAGGTGATACCTAAA,,
5281,AA398883,,20,58,AGGTGATACCTAAATCCTTC,,
5282,AA398883,,20,52,TACCTAAATCCTTCTTATGT,,
5283,AA398883,,20,46,AATCCTTCTTATGTTTCTAA,,
5284,AA398883,,20,40,TCTTATGTTTCTAAATTTTG,,
5285,AA398883,,20,34,GTTTCTAAATTTTGTGATTC,,
5286,AA398883,,20,28,AAATTTTGTGATTCTATAAA,,
5287,AA398883,,20,22,TGTGATTCTATAAAACACAT,,
5288,AA398883,,20,16,TCTATAAAACACATCATCAA,,
5289,AA398883,,20,10,AAACACATCATCAATAAAAT,,
5290,AA398883,,20,4,ATCATCAATAAAATAGTGAC,,
(GENBANK ACCESSION NO. AA425700)
CACATTTTATTTAATCTTTTATTTGAATCAAGGGAACCCTCATATGGAGAATAGAGACCCAAAGAACAGTTGGGATCAAGAGCTTAT
TTACTTTTTAAAGAAATGATACATTTGTGGAAAATTGATCAAATAAAGAGCTTTAGGCTAAGGGCAGTAAATTGTGGCATGACTAAG
AAATAGATGGTGGATATGAGTGGAAGATAAGGAGTATTTCAGTAGATTTGTTTGTACAGATCCATTTCGTCATCTACTCCCAGTCTC
CAGTAAGGATGTTCTTCTCTTCTGGAACAGAAGGGGCACTTTCTCATGGGAAATTGTATTACCTGCTTTTAGGGAGACAGCAGGTCA
GGGAACCCTTCCTG
(SEQ ID NO: 5291)

5292,AA425700,,20,343,CAGGAAGGGTTCCCTGACCT,,
5293,AA425700,,20,337,GGGTTCCCTGACCTGCTGTC,,
5294,AA425700,,20,331,CCTGACCTGCTGTCTCCCTA,,
5295,AA425700,,20,325,CTGCTGTCTCCCTAAAAGCA,,
5296,AA425700,,20,319,TCTCCCTAAAAGCAGGTAAT,,
5297,AA425700,,20,313,TAAAAGCAGGTAATACAATT,,
5298,AA425700,,20,307,CAGGTAATACAATTTCCCAT,,
5299,AA425700,,20,301,ATACAATTTCCCATGAGAAA,,
5300,AA425700,,20,295,TTTCCCATGAGAAAGTGCCC,,
5301,AA425700,,20,289,ATGAGAAAGTGCCCCTTCTG,,
5302,AA425700,,20,283,AAGTGCCCCTTCTGTTCCAG,,
5303,AA425700,,20,277,CCCTTCTGTTCCAGAAGAGA,,
5304,AA425700,,20,271,TGTTCCAGAAGAGAAGAACA,,
5305,AA425700,,20,265,AGAAGAGAAGAACATCCTTA,,
5306,AA425700,,20,259,GAAGAACATCCTTACTGGAG,,
5307,AA425700,,20,253,CATCCTTACTGGAGACTGGG,,
5308,AA425700,,20,247,TACTGGAGACTGGGAGTAGA,,
5309,AA425700,,20,241,AGACTGGGAGTAGATGACGA,,
5310,AA425700,,20,235,GGAGTAGATGACGAAATGGA,,
5311,AA425700,,20,229,GATGACGAAATGGATCTGTA,,
5312,AA425700,,20,223,GAAATGGATCTGTACAAACA,,
5313,AA425700,,20,217,GATCTGTACAAACAAATCTA,,
5314,AA425700,,20,211,TACAAACAAATCTACTGAAA,,
5315,AA425700,,20,205,CAAATCTACTGAAATACTCC,,
5316,AA425700,,20,199,TACTGAAATACTCCTTATCT,,
5317,AA425700,,20,193,AATACTCCTTATCTTCCACT,,
5318,AA425700,,20,187,CCTTATCTTCCACTCATATC,,
5319,AA425700,,20,181,CTTCCACTCATATCCACCAT,,
5320,AA425700,,20,175,CTCATATCCACCATCTATTT,,
5321,AA425700,,20,169,TCCACCATCTATTTCTTAGT,,
5322,AA425700,,20,163,ATCTATTTCTTAGTCATGCC,,
5323,AA425700,,20,157,TTCTTAGTCATGCCACAATT,,
5324,AA425700,,20,151,GTCATGCCACAATTTACTGC,,
5325,AA425700,,20,145,CCACAATTTACTGCCCTTAG,,
5326,AA425700,,20,139,TTTACTGCCCTTAGCCTAAA,,
5327,AA425700,,20,133,GCCCTTAGCCTAAAGCTCTT,,
5328,AA425700,,20,127,AGCCTAAAGCTCTTTATTTG,,
5329,AA425700,,20,121,AAGCTCTTTATTTGATCAAT,,
5330,AA425700,,20,115,TTTATTTGATCAATTTTCCA,,
5331,AA425700,,20,109,TGATCAATTTTCCACAAATG,,
5332,AA425700,,20,103,ATTTTCCACAAATGTATCAT,,
5333,AA425700,,20,97,CACAAATGTATCATTTCTTT,,
5334,AA425700,,20,91,TGTATCATTTCTTTAAAAAG,,
5335,AA425700,,20,85,ATTTCTTTAAAAAGTAAATA,,
5336,AA425700,,20,79,TTAAAAAGTAAATAAGCTCT,,
5337,AA425700,,20,73,AGTAAATAAGCTCTTGATCC,,
5338,AA425700,,20,67,TAAGCTCTTGATCCCAACTG,,

5339,AA425700,,20,61,CTTGATCCCAACTGTTCTTT,,
5340,AA425700,,20,55,CCCAACTGTTCTTTGGGTCT,,
5341,AA425700,,20,49,TGTTCTTTGGGTCTCTATTC,,
5342,AA425700,,20,43,TTGGGTCTCTATTCTCCATA,,
5343,AA425700,,20,37,CTCTATTCTCCATATGAGGG,,
5344,AA425700,,20,31,TCTCCATATGAGGGTTCCCT,,
5345,AA425700,,20,25,TATGAGGGTTCCCTTGATTC,,
5346,AA425700,,20,19,GGTTCCCTTGATTCAAATAA,,
5347,AA425700,,20,13,CTTGATTCAAATAAAAGATT,,
5348,AA425700,,20,7,TCAAATAAAAGATTAAATAA,,
5349,AA425700,,20,1,AAAAGATTAAATAAAATGTG,,
(GENBANK ACCESSION NO. AA459692)
GCCTGTTAATACAGTAGTTGTAAAATTGTACGTGTATTAGCAAGGAAACATAAACCTGCCTGGAATAAACTGTAAACCATGGAATAT
CAGACACCTGCCTGATATTCTCACTACAAACATTTCGTGGTCAAAATTGTCTTCTGACGATGATGGTCATTTGGAGAACAAAAACAG
CAAAGCAAGAGGAGAGAACAAGAGTATCCTGAGGCGGTCTCCTGCAGTGCTCATAGCTGTTCCTCCTTAGCCTTCCACCTGGTGGCC
CTGGACTAGACCTCCAGAGAATTCC
(SEQ ID NO: 5350)

5351,AA459692,,20,267,GGAATTCTCTGGAGGTCTAG,,
5352,AA459692,,20,261,CTCTGGAGGTCTAGTCCAGG,,
5353,AA459692,,20,255,AGGTCTAGTCCAGGGCCACC,,
5354,AA459692,,20,249,AGTCCAGGGCCACCAGGTGG,,
5355,AA459692,,20,243,GGGCCACCAGGTGGAAGGCT,,
5356,AA459692,,20,237,CCAGGTGGAAGGCTAAGGAG,,
5357,AA459692,,20,231,GGAAGGCTAAGGAGGAACAG,,
5358,AA459692,,20,225,CTAAGGAGGAACAGCTATGA,,
5359,AA459692,,20,219,AGGAACAGCTATGAGCACTG,,
5360,AA459692,,20,213,AGCTATGAGCACTGCAGGAG,,
5361,AA459692,,20,207,GAGCACTGCAGGAGACCGCC,,
5362,AA459692,,20,201,TGCAGGAGACCGCCTCAGGA,,
5363,AA459692,,20,195,AGACCGCCTCAGGATACTCT,,
5364,AA459692,,20,189,CCTCAGGATACTCTTGTTCT,,
5365,AA459692,,20,183,GATACTCTTGTTCTCTCCTC,,
5366,AA459692,,20,177,CTTGTTCTCTCCTCTTGCTT,,
5367,AA459692,,20,171,CTCTCCTCTTGCTTTGCTGT,,
5368,AA459692,,20,165,TCTTGCTTTGCTGTTTTTGT,,
5369,AA459692,,20,159,TTTGCTGTTTTTGTTCTCCA,,
5370,AA459692,,20,153,GTTTTTGTTCTCCAAATGAC,,
5371,AA459692,,20,147,GTTCTCCAAATGACCATCAT,,
5372,AA459692,,20,141,CAAATGACCATCATCGTCAG,,
5373,AA459692,,20,135,ACCATCATCGTCAGAAGACA,,
5374,AA459692,,20,129,ATCGTCAGAAGACAATTTTG,,
5375,AA459692,,20,123,AGAAGACAATTTTGACCACG,,
5376,AA459692,,20,117,CAATTTTGACCACGAAATGT,,
5377,AA459692,,20,111,TGACCACGAAATGTTTGTAG,,
5378,AA459692,,20,105,CGAAATGTTTGTAGTGAGAA,,
5379,AA459692,,20,99,GTTTGTAGTGAGAATATCAG,,
5380,AA459692,,20,93,AGTGAGAATATCAGGCAGGT,,
5381,AA459692,,20,87,AATATCAGGCAGGTGTCTGA,,
5382,AA459692,,20,81,AGGCAGGTGTCTGATATTCC,,
5383,AA459692,,20,75,GTGTCTGATATTCCATGGTT,,
5384,AA459692,,20,69,GATATTCCATGGTTTACAGT,,
5385,AA459692,,20,63,CCATGGTTTACAGTTTATTC,,
5386,AA459692,,20,57,TTTACAGTTTATTCCAGGCA,,
5387,AA459692,,20,51,GTTTATTCCAGGCAGGTTTA,,
5388,AA459692,,20,45,TCCAGGCAGGTTTATGTTTC,,
5389,AA459692,,20,39,CAGGTTTATGTTTCCTTGCT,,
5390,AA459692,,20,33,TATGTTTCCTTGCTAATACA,,
5391,AA459692,,20,27,TCCTTGCTAATACACGTACA,,
5392,AA459692,,20,21,CTAATACACGTACAATTTTA,,
5393,AA459692,,20,15,CACGTACAATTTTACAACTA,,
5394,AA459692,,20,9,CAATTTTACAACTACTGTAT,,
5395,AA459692,,20,3,TACAACTACTGTATTAACAG,,
(GENBANK ACCESSION NO. AA487557)
TTTTCAAATTTTAATTAAAATCTTTATTGAATAAAAATGTTTCAGACTAGGTAAGACTAAGAAAGCAGAATGTTTTACATCTCTAAA
AAATATTAAAGCTAAATCTCTATAAATGCAGTACAAAGAAAAGCCTACAGCTTAAGACACCTCTCCCTCCCATCCATACAATTTGGA
ATATCAACTGTGTACAACAAATGTACTCAAGTTTATAATGTCCCCAAACCTTAAGACTAGAAAATCATCCCAAGAAAAAGGCCTAT
AGTTGGTTTAATTTCACCCTGAGAATACTGTGATAAAAATCAATATATTTCAGAGCTAGTAAGTATTTAAAAATTAGTGTCTCAAAA
AGGGGACATC
(SEQ ID NO: 5396)

5397,AA487557,,20,338,GATGTCCCCTTTTTGAGACA,,
5398,AA487557,,20,332,CCCTTTTTGAGACACTAATT,,
5399,AA487557,,20,326,TTGAGACACTAATTTTTAAA,,
5400,AA487557,,20,320,CACTAATTTTTAAATACTTA,,

5401,AA487557,,20,314,TTTTTAAATACTTACTAGCT,,
5402,AA487557,,20,308,AATACTTACTAGCTCTGAAA,,
5403,AA487557,,20,302,TACTAGCTCTGAAATATATT,,
5404,AA487557,,20,296,CTCTGAAATATATTGATTTT,,
5405,AA487557,,20,290,AATATATTGATTTTTATCAC,,
5406,AA487557,,20,284,TTGATTTTTATCACAGTATT,,
5407,AA487557,,20,278,TTTATCACAGTATTCTCAGG,,
5408,AA487557,,20,272,ACAGTATTCTCAGGGTGAAA,,
5409,AA487557,,20,266,TTCTCAGGGTGAAATTAAAC,,
5410,AA487557,,20,260,GGGTGAAATTAAACCAACTA,,
5411,AA487557,,20,254,AATTAAACCAACTATAGGCC,,
5412,AA487557,,20,248,ACCAACTATAGGCCTTTTTC,,
5413,AA487557,,20,242,TATAGGCCTTTTTCTTGGGA,,
5414,AA487557,,20,236,CCTTTTTCTTGGGATGATTT,,
5415,AA487557,,20,230,TCTTGGGATGATTTTCTAGT,,
5416,AA487557,,20,224,GATGATTTTCTAGTCTTAAG,,
5417,AA487557,,20,218,TTTCTAGTCTTAAGGTTTGG,,
5418,AA487557,,20,212,GTCTTAAGGTTTGGGGACAT,,
5419,AA487557,,20,206,AGGTTTGGGGACATTATAAA,,
5420,AA487557,,20,200,GGGGACATTATAAACTTGAG,,
5421,AA487557,,20,194,ATTATAAACTTGAGTACATT,,
5422,AA487557,,20,188,AACTTGAGTACATTTGTTGT,,
5423,AA487557,,20,182,AGTACATTTGTTGTACACAG,,
5424,AA487557,,20,176,TTTGTTGTACACAGTTGATA,,
5425,AA487557,,20,170,GTACACAGTTGATATTCCAA,,
5426,AA487557,,20,164,AGTTGATATTCCAAATTGTA,,
5427,AA487557,,20,158,TATTCCAAATTGTATGGATG,,
5428,AA487557,,20,152,AAATTGTATGGATGGGAGGG,,
5429,AA487557,,20,146,TATGGATGGGAGGGAGAGGT,,
5430,AA487557,,20,140,TGGGAGGGAGAGGTGTCTTA,,
5431,AA487557,,20,134,GGAGAGGTGTCTTAAGCTGT,,
5432,AA487557,,20,128,GTGTCTTAAGCTGTAGGCTT,,
5433,AA487557,,20,122,TAAGCTGTAGGCTTTTCTTT,,
5434,AA487557,,20,116,GTAGGCTTTTCTTTGTACTG,,
5435,AA487557,,20,110,TTTTCTTTGTACTGCATTTA,,
5436,AA487557,,20,104,TTGTACTGCATTTATAGAGA,,
5437,AA487557,,20,98,TGCATTTATAGAGATTTAGC,,
5438,AA487557,,20,92,TATAGAGATTTAGCTTTAAT,,
5439,AA487557,,20,86,GATTTAGCTTTAATATTTTT,,
5440,AA487557,,20,80,GCTTTAATATTTTTTAGAGA,,
5441,AA487557,,20,74,ATATTTTTTAGAGATGTAAA,,
5442,AA487557,,20,68,TTTAGAGATGTAAAACATTC,,
5443,AA487557,,20,62,GATGTAAAACATTCTGCTTT,,
5444,AA487557,,20,56,AAACATTCTGCTTTCTTAGT,,
5445,AA487557,,20,50,TCTGCTTTCTTAGTCTTACC,,
5446,AA487557,,20,44,TTCTTAGTCTTACCTAGTCT,,
5447,AA487557,,20,38,GTCTTACCTAGTCTGAAACA,,
5448,AA487557,,20,32,CCTAGTCTGAAACATTTTTA,,
5449,AA487557,,20,26,CTGAAACATTTTTATTCAAT,,
5450,AA487557,,20,20,CATTTTTATTCAATAAAGAT,,
5451,AA487557,,20,14,TATTCAATAAAGATTTTAAT,,
5452,AA487557,,20,8,ATAAAGATTTTAATTAAAAT,,
5453,AA487557,,20,2,ATTTTAATTAAAATTTGAAA,,
(GENBANK ACCESSION NO. T69168)
CAATAANGTGCNTTTCAACTCAGCAATATACATATCANTGCNTTTCCTCATTANTTAATTGATCCATCAATAAATATACAAAAACCA
GAGGAAGGGTGTGCTCTGAAAAGTCAAAGTAACAATAACAGTGGTCATTGTACAGCACAAGANTGAACAATGGGCTATTCTTTGAA
AACTCAAAACAAATGATTTACACAAAGACATATCTATAACATAAAGGTGAATGGACCATGTTATTCTTATTCTTANGTACATTTTGC
TTTTCCAGNTAAGTCAAATGTTTCCTCTCTCCTTACTCCTCTGATATTNCAGTNTTGAATGAATGTTGGCTACANAATCTNTTCT
(SEQ ID NO: 5454)

5455,T69168,,20,326,AGAANAGATTNTGTAGCCAA,,
5456,T69168,,20,320,GATTNTGTAGCCAACATTCA,,
5457,T69168,,20,314,GTAGCCAACATTCATTCAAN,,
5458,T69168,,20,308,AACATTCATTCAANACTGNA,,
5459,T69168,,20,302,CATTCAANACTGNAATATCA,,
5460,T69168,,20,296,ANACTGNAATATCAGAGGAG,,
5461,T69168,,20,290,NAATATCAGAGGAGTAAGGA,,
5462,T69168,,20,284,CAGAGGAGTAAGGAGAGAGG,,
5463,T69168,,20,278,AGTAAGGAGAGAGGAAACAT,,
5464,T69168,,20,272,GAGAGAGGAAACATTTGACT,,
5465,T69168,,20,266,GGAAACATTTGACTTANCTG,,
5466,T69168,,20,260,ATTTGACTTANCTGGAAAAG,,
5467,T69168,,20,254,CTTANCTGGAAAAGCAAAAT,,
5468,T69168,,20,248,TGGAAAAGCAAAATGTACNT,,
5469,T69168,,20,242,AGCAAAATGTACNTAAGAAT,,

5470,T69168,,20,236,ATGTACNTAAGAATAAGAAT,,
5471,T69168,,20,230,NTAAGAATAAGAATAACATG,,
5472,T69168,,20,224,ATAAGAATAACATGGTCCAT,,
5473,T69168,,20,218,ATAACATGGTCCATTCACCT,,
5474,T69168,,20,212,TGGTCCATTCACCTTTATGT,,
5475,T69168,,20,206,ATTCACCTTTATGTTATAGA,,
5476,T69168,,20,200,CTTTATGTTATAGATATGTC,,
5477,T69168,,20,194,GTTATAGATATGTCTTTGTG,,
5478,T69168,,20,188,GATATGTCTTTGTGTAAATC,,
5479,T69168,,20,182,TCTTTGTGTAAATCATTTGT,,
5480,T69168,,20,176,TGTAAATCATTTGTTTTGAG,,
5481,T69168,,20,170,TCATTTGTTTTGAGTTTTCA,,
5482,T69168,,20,164,GTTTTGAGTTTTCAAAGAAT,,
5483,T69168,,20,158,AGTTTTCAAAGAATAGCCCA,,
5484,T69168,,20,152,CAAAGAATAGCCCATTGTTC,,
5485,T69168,,20,146,ATAGCCCATTGTTCANTCTT,,
5486,T69168,,20,140,CATTGTTCANTCTTGTGCTG,,
5487,T69168,,20,134,TCANTCTTGTGCTGTACAAT,,
5488,T69168,,20,128,TTGTGCTGTACAATGACCAC,,
5489,T69168,,20,122,TGTACAATGACCACTGTTAT,,
5490,T69168,,20,116,ATGACCACTGTTATTGTTAC,,
5491,T69168,,20,110,ACTGTTATTGTTACTTTGAC,,
5492,T69168,,20,104,ATTGTTACTTTGACTTTTCA,,
5493,T69168,,20,98,ACTTTGACTTTTCAGAGCAC,,
5494,T69168,,20,92,ACTTTTCAGAGCACACCCTT,,
5495,T69168,,20,86,CAGAGCACACCCTTCCTCTG,,
5496,T69168,,20,80,ACACCCTTCCTCTGGTTTTT,,
5497,T69168,,20,74,TTCCTCTGGTTTTTGTATAT,,
5498,T69168,,20,68,TGGTTTTTGTATATTTATTG,,
5499,T69168,,20,62,TTGTATATTTATTGATGGAT,,
5500,T69168,,20,56,ATTTATTGATGGATCAATTA,,
5501,T69168,,20,50,TGATGGATCAATTAANTAAT,,
5502,T69168,,20,44,ATCAATTAANTAATGAGGAA,,
5503,T69168,,20,38,TAANTAATGAGGAAANGCAN,,
5504,T69168,,20,32,ATGAGGAAANGCANTGATAT,,
5505,T69168,,20,26,AAANGCANTGATATGTATAT,,
5506,T69168,,20,20,ANTGATATGTATATTGCTGA,,
5507,T69168,,20,14,ATGTATATTGCTGAGTTGAA,,
5508,T69168,,20,8,ATTGCTGAGTTGAAANGCAC,,
5509,T69168,,20,2,GAGTTGAAANGCACNTTATT,,
(GENBANK ACCESSION NO. AI313387)
CAATTCCCAGTCACCTTTATTTAAAGTATATTAAATAAATTATCTCAATATATACAAATAGAACAATATTACCTACATAAATAGAAA
ATCCCCATATAGAAAACCTTTTTAAAAAATTATATATACAATGTCAACCATAGAAGCTTTAAGTACCTTAAATCATAAACTCTGTAG
TTTGTATAGTAGTCTTATAAAAATATAGTTAGCTCTCAAATGTTTAATGCCACTTAAGTCAGTTAAAGTGCAGATTGTAAAGCATATT
AGGAAGGTGCCCAGAATACCAATGTCTCCTGCACTTAACACATTAATACAAAGTTTGCCAATTGTTTTGAATTTCCAAATGTATTCC
TGAAAAAAAAAAGAACCTAAACACTATATTATAGACATATGTTAGAAAAGTCCTAGAAATGCACCCAATTTCCTTCCATTCTACTTT
CCTACATGGATTGAAGTCAGNCCCTCAAAAGCTTTTCGGGCTGGCAT
(SEQ ID NO: 5510)

5511,AI313387,,20,464,ATGCCAGCCCGAAAAGCTTT,,
5512,AI313387,,20,458,GCCCGAAAAGCTTTTGAGGG,,
5513,AI313387,,20,452,AAAGCTTTTGAGGGNCTGAC,,
5514,AI313387,,20,446,TTTGAGGGNCTGACTTCAAT,,
5515,AI313387,,20,440,GGNCTGACTTCAATCCATGT,,
5516,AI313387,,20,434,ACTTCAATCCATGTAGGAAA,,
5517,AI313387,,20,428,ATCCATGTAGGAAAGTAGAA,,
5518,AI313387,,20,422,GTAGGAAAGTAGAATGGAAG,,
5519,AI313387,,20,416,AAGTAGAATGGAAGGAAATT,,
5520,AI313387,,20,410,AATGGAAGGAAATTGGGTGC,,
5521,AI313387,,20,404,AGGAAATTGGGTGCATTTCT,,
5522,AI313387,,20,398,TTGGGTGCATTTCTAGGACT,,
5523,AI313387,,20,392,GCATTTCTAGGACTTTTCTA,,
5524,AI313387,,20,386,CTAGGACTTTTCTAACATAT,,
5525,AI313387,,20,380,CTTTTCTAACATATGTCTAT,,
5526,AI313387,,20,374,TAACATATGTCTATAATATA,,
5527,AI313387,,20,368,ATGTCTATAATATAGTGTTT,,
5528,AI313387,,20,362,ATAATATAGTGTTTAGGTTC,,
5529,AI313387,,20,356,TAGTGTTTAGGTTCTTTTTT,,
5530,AI313387,,20,350,TTAGGTTCTTTTTTTTTTCA,,
5531,AI313387,,20,344,TCTTTTTTTTTTCAGGAATA,,
5532,AI313387,,20,338,TTTTTTCAGGAATACATTTG,,
5533,AI313387,,20,332,CAGGAATACATTTGGAAATT,,
5534,AI313387,,20,326,TACATTTGGAAATTCAAAAC,,
5535,AI313387,,20,320,TGGAAATTCAAAACAATTGG,,
5536,AI313387,,20,314,TTCAAAACAATTGGCAAACT,,

5537,AI313387,,20,308,ACAATTGGCAAACTTTGTAT,,
5538,AI313387,,20,302,GGCAAACTTTGTATTAATGT,,
5539,AI313387,,20,296,CTTTGTATTAATGTGTTAAG,,
5540,AI313387,,20,290,ATTAATGTGTTAAGTGCAGG,,
5541,AI313387,,20,284,GTGTTAAGTGCAGGAGACAT,,
5542,AI313387,,20,278,AGTGCAGGAGACATTGGTAT,,
5543,AI313387,,20,272,GGAGACATTGGTATTCTGGG,,
5544,AI313387,,20,266,ATTGGTATTCTGGGCACCTT,,
5545,AI313387,,20,260,ATTCTGGGCACCTTCCTAAT,,
5546,AI313387,,20,254,GGCACCTTCCTAATATGCTT,,
5547,AI313387,,20,248,TTCCTAATATGCTTTACAAT,,
5548,AI313387,,20,242,ATATGCTTTACAATCTGCAC,,
5549,AI313387,,20,236,TTTACAATCTGCACTTTAAC,,
5550,AI313387,,20,230,ATCTGCACTTTAACTGACTT,,
5551,AI313387,,20,224,ACTTTAACTGACTTAAGTGG,,
5552,AI313387,,20,218,ACTGACTTAAGTGGCATTAA,,
5553,AI313387,,20,212,TTAAGTGGCATTAAACATTT,,
5554,AI313387,,20,206,GGCATTAAACATTTGAGAGC,,
5555,AI313387,,20,200,AAACATTTGAGAGCTAACTA,,
5556,AI313387,,20,194,TTGAGAGCTAACTATATTTT,,
5557,AI313387,,20,188,GCTAACTATATTTTTATAAG,,
5558,AI313387,,20,182,TATATTTTTATAAGACTACT,,
5559,AI313387,,20,176,TTTATAAGACTACTATACAA,,
5560,AI313387,,20,170,AGACTACTATACAAACTACA,,
5561,AI313387,,20,164,CTATACAAACTACAGAGTTT,,
5562,AI313387,,20,158,AAACTACAGAGTTTATGATT,,
5563,AI313387,,20,152,CAGAGTTTATGATTTAAGGT,,
5564,AI313387,,20,146,TTATGATTTAAGGTACTTAA,,
5565,AI313387,,20,140,TTTAAGGTACTTAAAGCTTC,,
5566,AI313387,,20,134,GTACTTAAAGCTTCTATGGT,,
5567,AI313387,,20,128,AAAGCTTCTATGGTTGACAT,,
5568,AI313387,,20,122,TCTATGGTTGACATTGTATA,,
5569,AI313387,,20,116,GTTGACATTGTATATATAAT,,
5570,AI313387,,20,110,ATTGTATATATAATTTTTTA,,
5571,AI313387,,20,104,TATATAATTTTTTAAAAAGG,,
5572,AI313387,,20,98,ATTTTTTAAAAAGGTTTTCT,,
5573,AI313387,,20,92,TAAAAAGGTTTTCTATATGG,,
5574,AI313387,,20,86,GGTTTTCTATATGGGGATTT,,
5575,AI313387,,20,80,CTATATGGGGATTTTCTATT,,
5576,AI313387,,20,74,GGGGATTTTCTATTTATGTA,,
5577,AI313387,,20,68,TTTCTATTTATGTAGGTAAT,,
5578,AI313387,,20,62,TTTATGTAGGTAATATTGTT,,
5579,AI313387,,20,56,TAGGTAATATTGTTCTATTT,,
5580,AI313387,,20,50,ATATTGTTCTATTTGTATAT,,
5581,AI313387,,20,44,TTCTATTTGTATATATTGAG,,
5582,AI313387,,20,38,TTGTATATATTGAGATAATT,,
5583,AI313387,,20,32,ATATTGAGATAATTTATTTA,,
5584,AI313387,,20,26,AGATAATTTATTTAATATAC,,
5585,AI313387,,20,20,TTTATTTAATATACTTTAAA,,
5586,AI313387,,20,14,TAATATACTTTAAATAAAGG,,
5587,AI313387,,20,8,ACTTTAAATAAAGGTGACTG,,
5588,AI313387,,20,2,AATAAAGGTGACTGGGAATT,,
(GENBANK ACCESSION NO. AA909635)
GGGTATTTTTACATATTTATTAAAACAAGTTTCCTGAGAAGTTTGACTAGGCTATGTTGTTGTTAACCTAGTTTGCTTAAAATGTACG
AAAATGCAATCAAACTTACATATCTTTTAAATATTCGAAAGTCAGATTTTGTTCTGATTGCCCTATCCAATTAGGGCAAATTAGTGA
GGGTTTTTTTGTTTTTTGTTTTGTTTTTCTAACAATAGTCTGAAACATAAAATTAAGTTTGTGTTTAAAAAACAATTCTTGAAACTGTCA
TAAACATATGATATCTATTGATTAAACAGTAATAAAAAGACACAAGGTACAAGAATTGAGGCTTGGCTGTTCTGGCTGTATACTAAC
TTCATAT
(SEQ ID NO: 5589)

5590,AA909635,,20,339,ATATGAAGTTAGTATACAGC,,
5591,AA909635,,20,333,AGTTAGTATACAGCCAGAAC,,
5592,AA909635,,20,327,TATACAGCCAGAACAGCCAA,,
5593,AA909635,,20,321,GCCAGAACAGCCAAGCCTCA,,
5594,AA909635,,20,315,ACAGCCAAGCCTCAATTCTT,,
5595,AA909635,,20,309,AAGCCTCAATTCTTGTACCT,,
5596,AA909635,,20,303,CAATTCTTGTACCTTGTGTC,,
5597,AA909635,,20,297,TTGTACCTTGTGTCTTTTTA,,
5598,AA909635,,20,291,CTTGTGTCTTTTTATTACTG,,
5599,AA909635,,20,285,TCTTTTTATTACTGTTTAAT,,
5600,AA909635,,20,279,TATTACTGTTTAATCAATAG,,
5601,AA909635,,20,273,TGTTTAATCAATAGATATCA,,
5602,AA909635,,20,267,ATCAATAGATATCATATGTT,,
5603,AA909635,,20,261,AGATATCATATGTTTATGAC,,
5604,AA909635,,20,255,CATATGTTTATGACAGTTTC,,

5605,AA909635,,20,249,TTTATGACAGTTTCAAGAAT,,
5606,AA909635,,20,243,ACAGTTTCAAGAATTGTTTT,,
5607,AA909635,,20,237,TCAAGAATTGTTTTTAAACA,,
5608,AA909635,,20,231,ATTGTTTTTAAACACAAACT,,
5609,AA909635,,20,225,TTTAAACACAAACTTAATTT,,
5610,AA909635,,20,219,CACAAACTTAATTTTATGTT,,
5611,AA909635,,20,213,CTTAATTTTATGTTTCAGAC,,
5612,AA909635,,20,207,TTTATGTTTCAGACTATTGT,,
5613,AA909635,,20,201,TTTCAGACTATTGTTAGAAA,,
5614,AA909635,,20,195,ACTATTGTTAGAAAAACAAA,,
5615,AA909635,,20,189,GTTAGAAAAACAAAACAAAA,,
5616,AA909635,,20,183,AAAACAAAACAAAAAACAAA,,
5617,AA909635,,20,177,AAACAAAAAACAAAAAAACC,,
5618,AA909635,,20,171,AAAACAAAAAAACCCTCACT,,
5619,AA909635,,20,165,AAAAAACCCTCACTAATTTG,,
5620,AA909635,,20,159,CCCTCACTAATTTGCCCTAA,,
5621,AA909635,,20,153,CTAATTTGCCCTAATTGGAT,,
5622,AA909635,,20,147,TGCCCTAATTGGATAGGGCA,,
5623,AA909635,,20,141,AATTGGATAGGGCAATCAGA,,
5624,AA909635,,20,135,ATAGGGCAATCAGAACAAAA,,
5625,AA909635,,20,129,CAATCAGAACAAAATCTGAC,,
5626,AA909635,,20,123,GAACAAAATCTGACTTTCGA,,
5627,AA909635,,20,117,AATCTGACTTTCGAATATTT,,
5628,AA909635,,20,111,ACTTTCGAATATTTAAAAGA,,
5629,AA909635,,20,105,GAATATTTAAAAGATATGTA,,
5630,AA909635,,20,99,TTAAAAGATATGTAAGTTTG,,
5631,AA909635,,20,93,GATATGTAAGTTTGATTGCA,,
5632,AA909635,,20,87,TAAGTTTGATTGCATTTTCG,,
5633,AA909635,,20,81,TGATTGCATTTTCGTACATT,,
5634,AA909635,,20,75,CATTTTCGTACATTTTAAGC,,
5635,AA909635,,20,69,CGTACATTTTAAGCAAACTA,,
5636,AA909635,,20,63,TTTTAAGCAAACTAGGTTAA,,
5637,AA909635,,20,57,GCAAACTAGGTTAACAACAA,,
5638,AA909635,,20,51,TAGGTTAACAACAACATAGC,,
5639,AA909635,,20,45,AACAACAACATAGCCTAGTC,,
5640,AA909635,,20,39,AACATAGCCTAGTCAAACTT,,
5641,AA909635,,20,33,GCCTAGTCAAACTTCTCAGG,,
5642,AA909635,,20,27,TCAAACTTCTCAGGAAACTT,,
5643,AA909635,,20,21,TTCTCAGGAAACTTGTTTTA,,
5644,AA909635,,20,15,GGAAACTTGTTTTAATAAAT,,
5645,AA909635,,20,9,TTGTTTTAATAAATATGTAA,,
5646,AA909635,,20,3,TAATAAATATGTAAAAATAC,,
(GENBANK ACCESSION NO. R00103)
CGCTGCCAGGGTCCGCGGCGGCCCCCTCCTCGACAGCTGAGGGGGCAGCCTCTTCAGCCACCGGGGCTGGGGTCTGGGGNTGGCTC
GGGGCTGGCCTCAGTAGGGGCCTCAGTGGGGCTTGGGGGTCTATGGGCTTCCTCCTCCTTCTCTAACATTGGGAAGCCGAGTGCTTC
TGAAGGTTCATCAGGGGACAGATCGGGGAGAGTTGGCTTAAAGGTGGCAGCATCACTGTCATCTCCAGTAGTCGGCTCCGGCACAA
GGTCTAGTNGGTNAGGTNAGAGATGGGATTAAGGGTTCCTNCCCAGATCTCAAAGGGCAGCTTNAGATNGGGGAGCCCCACACAC
GAAACTTCCATTTTATTTTAT
(SEQ ID NO: 5647)

5648,R00103,,20,346,ATAAAATAAAATGGAAGTTT,,
5649,R00103,,20,340,TAAAATGGAAGTTTCGTGTG,,
5650,R00103,,20,334,GGAAGTTTCGTGTGTGGGGC,,
5651,R00103,,20,328,TTCGTGTGTGGGGCTCCCCN,,
5652,R00103,,20,322,TGTGGGGCTCCCCNATCTNA,,
5653,R00103,,20,316,GCTCCCCNATCTNAAGCTGC,,
5654,R00103,,20,310,CNATCTNAAGCTGCCCTTTG,,
5655,R00103,,20,304,NAAGCTGCCCTTTGAGATCT,,
5656,R00103,,20,298,GCCCTTTGAGATCTGGGNAG,,
5657,R00103,,20,292,TGAGATCTGGGNAGGAACCC,,
5658,R00103,,20,286,CTGGGNAGGAACCCTTAATC,,
5659,R00103,,20,280,AGGAACCCTTAATCCCATCT,,
5660,R00103,,20,274,CCTTAATCCCATCTCTNACC,,
5661,R00103,,20,268,TCCCATCTCTNACCTNACCN,,
5662,R00103,,20,262,CTCTNACCTNACCNACTAGA,,
5663,R00103,,20,256,CCTNACCNACTAGACCTTGT,,
5664,R00103,,20,250,CNACTAGACCTTGTGCCGGA,,
5665,R00103,,20,244,GACCTTGTGCCGGAGCCGAC,,
5666,R00103,,20,238,GTGCCGGAGCCGACTACTGG,,
5667,R00103,,20,232,GAGCCGACTACTGGAGATGA,,
5668,R00103,,20,226,ACTACTGGAGATGACAGTGA,,
5669,R00103,,20,220,GGAGATGACAGTGATGCTGC,,
5670,R00103,,20,214,GACAGTGATGCTGCCACCTT,,
5671,R00103,,20,208,GATGCTGCCACCTTTAAGCC,,
5672,R00103,,20,202,GCCACCTTTAAGCCAACTCT,,

5673,R00103,,20,196,TTTAAGCCAACTCTCCCCGA,,
5674,R00103,,20,190,CCAACTCTCCCCGATCTGTC,,
5675,R00103,,20,184,CTCCCCGATCTGTCCCCTGA,,
5676,R00103,,20,178,GATCTGTCCCCTGATGAACC,,
5677,R00103,,20,172,TCCCCTGATGAACCTTCAGA,,
5678,R00103,,20,166,GATGAACCTTCAGAAGCACT,,
5679,R00103,,20,160,CCTTCAGAAGCACTCGGCTT,,
5680,R00103,,20,154,GAAGCACTCGGCTTCCCAAT,,
5681,R00103,,20,148,CTCGGCTTCCCAATGTTAGA,,
5682,R00103,,20,142,TTCCCAATGTTAGAGAAGGA,,
5683,R00103,,20,136,ATGTTAGAGAAGGAGGAGGA,,
5684,R00103,,20,130,GAGAAGGAGGAGGAAGCCCA,,
5685,R00103,,20,124,GAGGAGGAAGCCCATAGACC,,
5686,R00103,,20,118,GAAGCCCATAGACCCCCAAG,,
5687,R00103,,20,112,CATAGACCCCCAAGCCCCAC,,
5688,R00103,,20,106,CCCCCAAGCCCCACTGAGGC,,
5689,R00103,,20,100,AGCCCCACTGAGGCCCCTAC,,
5690,R00103,,20,94,ACTGAGGCCCCTACTGAGGC,,
5691,R00103,,20,88,GCCCCTACTGAGGCCAGCCC,,
5692,R00103,,20,82,ACTGAGGCCAGCCCCGAGCC,,
5693,R00103,,20,76,GCCAGCCCCGAGCCANCCCC,,
5694,R00103,,20,70,CCCGAGCCANCCCCAGACCC,,
5695,R00103,,20,64,CCANCCCCAGACCCCAGCCC,,
5696,R00103,,20,58,CCAGACCCCAGCCCCGGTGG,,
5697,R00103,,20,52,CCCAGCCCCGGTGGCTGAAG,,
5698,R00103,,20,46,CCCGGTGGCTGAAGAGGCTG,,
5699,R00103,,20,40,GGCTGAAGAGGCTGCCCCCT,,
5700,R00103,,20,34,AGAGGCTGCCCCCTCAGCTG,,
5701,R00103,,20,28,TGCCCCCTCAGCTGTCGAGG,,
5702,R00103,,20,22,CTCAGCTGTCGAGGAGGGGG,,
5703,R00103,,20,16,TGTCGAGGAGGGGGCCGCCG,,
5704,R00103,,20,10,GGAGGGGGCCGCCGCGGACC,,
5705,R00103,,20,4,GGCCGCCGCGGACCCTGGCA,,
(GENBANK ACCESSION NO. N35316)
NGAGCTTATCTTCAATTTTATTGTTGGGAATCTACAATTGCAAAGTGGTTCAAAGTCATTTCTTATACCACTTCACAATACACACACA
GATTTAGGAAACTTAAAAAAAGTTCTTTAAAAAATTCTAATAGGATTTACCCTATTTTACTGGCCAAGTGTAAAAAATAAACCCTAA
ATGTGCCTTTCTCTAATTTTCCTTGTACAATCTTATTGACATTTTTTATAGCTAATCCATATATGCATAGAACCGAGGCTATTATTTTG
CTGCAACAACTTTTATAAAAAGGTTATGAAGTTTAAAAGTATATTTTCGTATCAAGAGTACTTAATATTTGTAAACACTAAGAAACA
AACATACTTCCTATCAAAACCTCTAGCTG
(SEQ ID NO: 5706)

5707,N35316,,20,361,CAGCTAGAGGTTTTGATAGG,,
5708,N35316,,20,355,GAGGTTTTGATAGGAAGTAT,,
5709,N35316,,20,349,TTGATAGGAAGTATGTTTGT,,
5710,N35316,,20,343,GGAAGTATGTTTGTTTCTTA,,
5711,N35316,,20,337,ATGTTTGTTTCTTAGTGTTT,,
5712,N35316,,20,331,GTTTCTTAGTGTTTACAAAT,,
5713,N35316,,20,325,TAGTGTTTACAAATATTAAG,,
5714,N35316,,20,319,TTACAAATATTAAGTACTCT,,
5715,N35316,,20,313,ATATTAAGTACTCTTGATAC,,
5716,N35316,,20,307,AGTACTCTTGATACGAAAAT,,
5717,N35316,,20,301,CTTGATACGAAAATATACTT,,
5718,N35316,,20,295,ACGAAAATATACTTTTAAAC,,
5719,N35316,,20,289,ATATACTTTTAAACTTCATA,,
5720,N35316,,20,283,TTTTAAACTTCATAACCTTT,,
5721,N35316,,20,277,ACTTCATAACCTTTTTATAA,,
5722,N35316,,20,271,TAACCTTTTTATAAAAGTTG,,
5723,N35316,,20,265,TTTTATAAAAGTTGTTGCAG,,
5724,N35316,,20,259,AAAAGTTGTTGCAGCAAAAT,,
5725,N35316,,20,253,TGTTGCAGCAAAATAATAGC,,
5726,N35316,,20,247,AGCAAAATAATAGCCTCGGT,,
5727,N35316,,20,241,ATAATAGCCTCGGTTCTATG,,
5728,N35316,,20,235,GCCTCGGTTCTATGCATATA,,
5729,N35316,,20,229,GTTCTATGCATATATGGATT,,
5730,N35316,,20,223,TGCATATATGGATTAGCTAT,,
5731,N35316,,20,217,TATGGATTAGCTATAAAAAA,,
5732,N35316,,20,211,TTAGCTATAAAAAATGTCAA,,
5733,N35316,,20,205,ATAAAAAATGTCAATAAGAT,,
5734,N35316,,20,199,AATGTCAATAAGATTGTACA,,
5735,N35316,,20,193,AATAAGATTGTACAAGGAAA,,
5736,N35316,,20,187,ATTGTACAAGGAAAATTAGA,,
5737,N35316,,20,181,CAAGGAAAATTAGAGAAAGG,,
5738,N35316,,20,175,AAATTAGAGAAAGGCACATT,,
5739,N35316,,20,169,GAGAAAGGCACATTTAGGGT,,
5740,N35316,,20,163,GGCACATTTAGGGTTTATTT,,

5741,N35316,,20,157,TTTAGGGTTTATTTTTTACA,,
5742,N35316,,20,151,GTTTATTTTTTACACTTGGC,,
5743,N35316,,20,145,TTTTTACACTTGGCCAGTAA,,
5744,N35316,,20,139,CACTTGGCCAGTAAAATAGG,,
5745,N35316,,20,133,GCCAGTAAAATAGGGTAAAT,,
5746,N35316,,20,127,AAAATAGGGTAAATCCTATT,,
5747,N35316,,20,121,GGGTAAATCCTATTAGAATT,,
5748,N35316,,20,115,ATCCTATTAGAATTTTTTAA,,
5749,N35316,,20,109,TTAGAATTTTTTAAAGAACT,,
5750,N35316,,20,103,TTTTTTAAAGAACTTTTTTT,,
5751,N35316,,20,97,AAAGAACTTTTTTTAAGTTT,,
5752,N35316,,20,91,CTTTTTTTAAGTTTCCTAAA,,
5753,N35316,,20,85,TTAAGTTTCCTAAATCTGTG,,
5754,N35316,,20,79,TTCCTAAATCTGTGTGTGTA,,
5755,N35316,,20,73,AATCTGTGTGTGTATTGTGA,,
5756,N35316,,20,67,TGTGTGTATTGTGAAGTGGT,,
5757,N35316,,20,61,TATTGTGAAGTGGTATAAGA,,
5758,N35316,,20,55,GAAGTGGTATAAGAAATGAC,,
5759,N35316,,20,49,GTATAAGAAATGACTTTGAA,,
5760,N35316,,20,43,GAAATGACTTTGAACCACTT,,
5761,N35316,,20,37,ACTTTGAACCACTTTGCAAT,,
5762,N35316,,20,31,AACCACTTTGCAATTGTAGA,,
5763,N35316,,20,25,TTTGCAATTGTAGATTCCCA,,
5764,N35316,,20,19,ATTGTAGATTCCCAACAATA,,
5765,N35316,,20,13,GATTCCCAACAATAAAATTG,,
5766,N35316,,20,7,CAACAATAAAATTGAAGATA,,
5767,N35316,,20,1,TAAAATTGAAGATAAGCTCN,,
(GENBANK ACCESSION NO. AA293300)
AACAGTAATTCTTCAGACTTTATTAAAAAATGACATAAAGTGCATCTTATTAAAAAATGTATAAAAACCACATAAATTCAGGGCCCC
TGTGCTGGGCAGTGTTGATATCCCTTAGAGTGGAGGAAGGTGAGGGATGGAGGGTGAACTGGGGACTGGGGAGAGGACCAGGGTG
CAGTTAGTTCCTCGTGTTTGAGTTCAAAGATGGAGCGAGGGTGGATATGGTGGGAAGGGGCACACGGGTTCTCACGCAACAACGGA
GGAAGGCAGGCGACAGTCTCTTCCCTGAATTCTGAGGGAAAGGCGTACATTGTCACGAAATCTCTCCTGAGCTCGCGCTGTCCTCTC
(SEQ ID NO: 5768)

5769,AA293300,,20,326,GAGAGGACAGCGCGAGCTCA,,
5770,AA293300,,20,320,ACAGCGCGAGCTCAGGAGAG,,
5771,AA293300,,20,314,CGAGCTCAGGAGAGATTTCG,,
5772,AA293300,,20,308,CAGGAGAGATTTCGTGACAA,,
5773,AA293300,,20,302,AGATTTCGTGACAATGTACG,,
5774,AA293300,,20,296,CGTGACAATGTACGCCTTTC,,
5775,AA293300,,20,290,AATGTACGCCTTTCCCTCAG,,
5776,AA293300,,20,284,CGCCTTTCCCTCAGAATTCA,,
5777,AA293300,,20,278,TCCCTCAGAATTCAGGGAAG,,
5778,AA293300,,20,272,AGAATTCAGGGAAGAGACTG,,
5779,AA293300,,20,266,CAGGGAAGAGACTGTCGCCT,,
5780,AA293300,,20,260,AGAGACTGTCGCCTGCCTTC,,
5781,AA293300,,20,254,TGTCGCCTGCCTTCCTCCGT,,
5782,AA293300,,20,248,CTGCCTTCCTCCGTTGTTGC,,
5783,AA293300,,20,242,TCCTCCGTTGTTGCGTGAGA,,
5784,AA293300,,20,236,GTTGTTGCGTGAGAACCCGT,,
5785,AA293300,,20,230,GCGTGAGAACCCGTGTGCCC,,
5786,AA293300,,20,224,GAACCCGTGTGCCCCTTCCC,,
5787,AA293300,,20,218,GTGTGCCCCTTCCCACCATA,,
5788,AA293300,,20,212,CCCTTCCCACCATATCCACC,,
5789,AA293300,,20,206,CCACCATATCCACCCTCGCT,,
5790,AA293300,,20,200,TATCCACCCTCGCTCCATCT,,
5791,AA293300,,20,194,CCCTCGCTCCATCTTTGAAC,,
5792,AA293300,,20,188,CTCCATCTTTGAACTCAAAC,,
5793,AA293300,,20,182,CTTTGAACTCAAACACGAGG,,
5794,AA293300,,20,176,ACTCAAACACGAGGAACTAA,,
5795,AA293300,,20,170,ACACGAGGAACTAACTGCAC,,
5796,AA293300,,20,164,GGAACTAACTGCACCCTGGT,,
5797,AA293300,,20,158,AACTGCACCCTGGTCCTCTC,,
5798,AA293300,,20,152,ACCCTGGTCCTCTCCCCAGT,,
5799,AA293300,,20,146,GTCCTCTCCCCAGTCCCCAG,,
5800,AA293300,,20,140,TCCCCAGTCCCCAGTTCACC,,
5801,AA293300,,20,134,GTCCCCAGTTCACCCTCCAT,,
5802,AA293300,,20,128,AGTTCACCCTCCATCCCTCA,,
5803,AA293300,,20,122,CCCTCCATCCCTCACCTTCC,,
5804,AA293300,,20,116,ATCCCTCACCTTCCTCCACT,,
5805,AA293300,,20,110,CACCTTCCTCCACTCTAAGG,,
5806,AA293300,,20,104,CCTCCACTCTAAGGGATATC,,
5807,AA293300,,20,98,CTCTAAGGGATATCAACACT,,
5808,AA293300,,20,92,GGGATATCAACACTGCCCAG,,
5809,AA293300,,20,86,TCAACACTGCCCAGCACAGG,,

5810,AA293300,,20,80,CTGCCCAGCACAGGGGCCCT,,
5811,AA293300,,20,74,AGCACAGGGGCCCTGAATTT,,
5812,AA293300,,20,68,GGGGCCCTGAATTTATGTGG,,
5813,AA293300,,20,62,CTGAATTTATGTGGTTTTTA,,
5814,AA293300,,20,56,TTATGTGGTTTTTATACATT,,
5815,AA293300,,20,50,GGTTTTTATACATTTTTTAA,,
5816,AA293300,,20,44,TATACATTTTTTAATAAGAT,,
5817,AA293300,,20,38,TTTTTAATAAGATGCACTT,,
5818,AA293300,,20,32,AATAAGATGCACTTTATGTC,,
5819,AA293300,,20,26,ATGCACTTTATGTCATTTTT,,
5820,AA293300,,20,20,TTTATGTCATTTTTTAATAA,,
5821,AA293300,,20,14,TCATTTTTTAATAAAGTCTG,,
5822,AA293300,,20,8,TTTAATAAAGTCTGAAGAAT,,
5823,AA293300,,20,2,AAAGTCTGAAGAATTACTGT,,
(GENBANK ACCESSION NO. AA278764)
TTTTTTTTTTTTTTTTTTTTGACAGGAACTGTTTTTATTCCAACCACCTCACCTCCTTAGAATGGGAGGCGAACAGTGAAATAGTGCA
TTTATCTTAAAAGTGAAATAATTCCAGGATGGTAGGGCGAGACCCTGTGATGGGTGAATTTACCTCACTTGATACCAAGGGCCCTTA
ATACTCGGGGAAGTGGGACTTTGTCGACAAAGCCAGGACAATCCCCCTACCCCCACCCCACCCAGCAGTGATTAAAAACCCGTACG
GTCACTTTCTATGTGATGGCTGTCTCCCTCTCACCAGACTGCATAGCGGTTGCAGATGAACATTTGGCACCTAGATGGGGGTCAAGG
AGCTGGGGCTGTGATTCAGGGAAGATGCTGAGGGGGACTGGGAGTCTCTGTTTGAATCTTGAAGCAAGGGGTGA
(SEQ ID NO: 5824)

5825,AA278764,,20,404,TCACCCCTTGCTTCAAGATT,,
5826,AA278764,,20,398,CTTGCTTCAAGATTCAAACA,,
5827,AA278764,,20,392,TCAAGATTCAAACAGAGACT,,
5828,AA278764,,20,386,TTCAAACAGAGACTCCCAGT,,
5829,AA278764,,20,380,CAGAGACTCCCAGTCCCCCT,,
5830,AA278764,,20,374,CTCCCAGTCCCCCTCAGCAT,,
5831,AA278764,,20,368,GTCCCCCTCAGCATCTTCCC,,
5832,AA278764,,20,362,CTCAGCATCTTCCCTGAATC,,
5833,AA278764,,20,356,ATCTTCCCTGAATCACAGCC,,
5834,AA278764,,20,350,CCTGAATCACAGCCCCAGCT,,
5835,AA278764,,20,344,TCACAGCCCCAGCTCCTTGA,,
5836,AA278764,,20,338,CCCCAGCTCCTTGACCCCCA,,
5837,AA278764,,20,332,CTCCTTGACCCCCATCTAGG,,
5838,AA278764,,20,326,GACCCCCATCTAGGTGCCAA,,
5839,AA278764,,20,320,CATCTAGGTGCCAAATGTTC,,
5840,AA278764,,20,314,GGTGCCAAATGTTCATCTGC,,
5841,AA278764,,20,308,AAATGTTCATCTGCAACCGC,,
5842,AA278764,,20,302,TCATCTGCAACCGCTATGCA,,
5843,AA278764,,20,296,GCAACCGCTATGCAGTCTGG,,
5844,AA278764,,20,290,GCTATGCAGTCTGGTGAGAG,,
5845,AA278764,,20,284,CAGTCTGGTGAGAGGGAGAC,,
5846,AA278764,,20,278,GGTGAGAGGGAGACAGCCAT,,
5847,AA278764,,20,272,AGGGAGACAGCCATCACATA,,
5848,AA278764,,20,266,ACAGCCATCACATAGAAAGT,,
5849,AA278764,,20,260,ATCACATAGAAAGTGACCGT,,
5850,AA278764,,20,254,TAGAAAGTGACCGTACGGGT,,
5851,AA278764,,20,248,GTGACCGTACGGGTTTTTAA,,
5852,AA278764,,20,242,GTACGGGTTTTTAATCACTG,,
5853,AA278764,,20,236,GTTTTTAATCACTGCTGGGT,,
5854,AA278764,,20,230,AATCACTGCTGGGTGGGGTG,,
5855,AA278764,,20,224,TGCTGGGTGGGGTGGGGGTA,,
5856,AA278764,,20,218,GTGGGGTGGGGGTAGGGGGA,,
5857,AA278764,,20,212,TGGGGGTAGGGGGATTGTCC,,
5858,AA278764,,20,206,TAGGGGGATTGTCCTGGCTT,,
5859,AA278764,,20,200,GATTGTCCTGGCTTTGTCGA,,
5860,AA278764,,20,194,CCTGGCTTTGTCGACAAAGT,,
5861,AA278764,,20,188,TTTGTCGACAAAGTCCCACT,,
5862,AA278764,,20,182,GACAAAGTCCCACTTCCCCG,,
5863,AA278764,,20,176,GTCCCACTTCCCCGAGTATT,,
5864,AA278764,,20,170,CTTCCCCGAGTATTAAGGGC,,
5865,AA278764,,20,164,CGAGTATTAAGGGCCCTTGG,,
5866,AA278764,,20,158,TTAAGGGCCCTTGGTATCAA,,
5867,AA278764,,20,152,GCCCTTGGTATCAAGTGAGG,,
5868,AA278764,,20,146,GGTATCAAGTGAGGTAAATT,,
5869,AA278764,,20,140,AAGTGAGGTAAATTCACCCA,,
5870,AA278764,,20,134,GGTAAATTCACCCATCACAG,,
5871,AA278764,,20,128,TTCACCCATCACAGGGTCTC,,
5872,AA278764,,20,122,CATCACAGGGTCTCGCCCTA,,
5873,AA278764,,20,116,AGGGTCTCGCCCTACCATCC,,
5874,AA278764,,20,110,TCGCCCTACCATCCTGGAAT,,
5875,AA278764,,20,104,TACCATCCTGGAATTATTTC,,
5876,AA278764,,20,98,CCTGGAATTATTTCACTTTT,,
5877,AA278764,,20,92,ATTATTTCACTTTTAAGATA,,

5878,AA278764,,20,86,TCACTTTTAAGATAAATGCA,,
5879,AA278764,,20,80,TTAAGATAAATGCACTATTT,,
5880,AA278764,,20,74,TAAATGCACTATTTCACTGT,,
5881,AA278764,,20,68,CACTATTTCACTGTTCGCCT,,
5882,AA278764,,20,62,TTCACTGTTCGCCTCCCATT,,
5883,AA278764,,20,56,GTTCGCCTCCCATTCTAAGG,,
5884,AA278764,,20,50,CTCCCATTCTAAGGAGGTGA,,
5885,AA278764,,20,44,TTCTAAGGAGGTGAGGTGGT,,
5886,AA278764,,20,38,GGAGGTGAGGTGGTTGGAAT,,
5887,AA278764,,20,32,GAGGTGGTTGGAATAAAAAC,,
5888,AA278764,,20,26,GTTGGAATAAAAACAGTTCC,,
5889,AA278764,,20,20,ATAAAAACAGTTCCTGTCAA,,
5890,AA278764,,20,14,ACAGTTCCTGTCAAAAAAAA,,
5891,AA278764,,20,8,CCTGTCAAAAAAAAAAAAAA,,
5892,AA278764,,20,2,AAAAAAAAAAAAAAAAAAAA,,
(GENBANK ACCESSION NO. AA678160)
ACCAATCTTAATTTAGCATTTTTTTAATGGGGCCACAGTCTTTTTCTCTATTATTGTAAATGTTTCTTTTTTTAAAGATTTGCCCTAGT
ACAATCCAAGTCCGCTTCCAAATAAAGTAAAAAGTATTAGTATGAAAAACCCTGGCTACAATAAATTAGAGACCATTTAATCCTGC
AATCTTGGTCAAGTTCATATTTCCACCATAGCACATTAG
(SEQ ID NO: 5893)

5894,AA678160,,20,195,CTAATGTGCTATGGTGGAAA,;
5895,AA678160,,20,189,TGCTATGGTGGAAATATGAA,,
5896,AA678160,,20,183,GGTGGAAATATGAACTTGAC,,
5897,AA678160,,20,177,AATATGAACTTGACCAAGAT,,
5898,AA678160,,20,171,AACTTGACCAAGATTGCAGG,,
5899,AA678160,,20,165,ACCAAGATTGCAGGATTAAA,,
5900,AA678160,,20,159,ATTGCAGGATTAAATGGTCT,,
5901,AA678160,,20,153,GGATTAAATGGTCTCTAATT,,
5902,AA678160,,20,147,AATGGTCTCTAATTTATTGT,,
5903,AA678160,,20,141,CTCTAATTTATTGTAGCCAG,,
5904,AA678160,,20,135,TTTATTGTAGCCAGGGTTTT,,
5905,AA678160,,20,129,GTAGCCAGGGTTTTTCATAC,,
5906,AA678160,,20,123,AGGGTTTTTCATACTAATAC,,
5907,AA678160,,20,117,TTTCATACTAATACTTTTTA,,
5908,AA678160,,20,111,ACTAATACTTTTTACTTTAT,,
5909,AA678160,,20,105,ACTTTTTACTTTATTTGGAA,,
5910,AA678160,,20,99,TACTTTATTTGGAAGCGGAC,,
5911,AA678160,,20,93,ATTTGGAAGCGGACTTGGAT,,
5912,AA678160,,20,87,AAGCGGACTTGGATTGTACT,,
5913,AA678160,,20,81,ACTTGGATTGTACTAGGGCA,,
5914,AA678160,,20,75,ATTGTACTAGGGCAAATCTT,,
5915,AA678160,,20,69,CTAGGGCAAATCTTTAAAAA,,
5916,AA678160,,20,63,CAAATCTTTAAAAAAAGAAA,,
5917,AA678160,,20,57,TTTAAAAAAAGAAACATTTA,,
5918,AA678160,,20,51,AAAAGAAACATTTACAATAA,,
5919,AA678160,,20,45,AACATTTACAATAATAGAGA,,
5920,AA678160,,20,39,TACAATAATAGAGAAAAAGA,,
5921,AA678160,,20,33,AATAGAGAAAAAGACTGTGG,,
5922,AA678160,,20,27,GAAAAAGACTGTGGCCCCAT,,
5923,AA678160,,20,21,GACTGTGGCCCCATTAAAAA,,
5924,AA678160,,20,15,GGCCCCATTAAAAAAATGCT,,
5925,AA678160,,20,9,ATTAAAAAAATGCTAAATTA,,
5926,AA678160,,20,3,AAAATGCTAAATTAAGATTG,,
(GENBANK ACCESSION NO. R42770)
TTTTTTTTTTTGTAACTTAATCTTTTATTTGTTCATTAATAGAGCAATTTTGATGTGAAGACTAAAAACACACATTTCCTGTTTCTTTA
ATACTCAGTGTATACATTTTGCAGATTAAATTTAAATACGTATTTTGGACCAGTTATTTGATANAATTCCTTCAGACGTTGTTTTTCA
AACCATCATCATAAATTTAACATATCTGCATTTTCGGTAAGTNCTTCAAACCCCTAGTCAAGGGGAAANCTGTAAATCTAATGAATA
AGGANCTTCTCAGGGCAATTAGGACAATATTTNCAAACNGGGCTGCTTGACTCANGGGTGACTTCCTTAAATCCGNGGTTTCTCAGG
CCCCGNCACTGTGGGATGTTTTGAGCGGGGTAATTNTTTGTTATGGGGGGGCTGTCCCTACANCGGGGTTTTAGGGGGG
(SEQ ID NO: 5927)

5928,R42770,,20,411,CCCCCCTAAAACCCCGNTGT,,
5929,R42770,,20,405,TAAAACCCCGNTGTAGGGAC,,
5930,R42770,,20,399,CCCGNTGTAGGGACAGCCCC,,
5931,R42770,,20,393,GTAGGGACAGCCCCCCCATA,,
5932,R42770,,20,387,ACAGCCCCCCCATAACAAAN,,
5933,R42770,,20,381,CCCCCATAACAAANAATTAC,,
5934,R42770,,20,375,TAACAAANAATTACCCCGCT,,
5935,R42770,,20,369,ANAATTACCCCGCTCAAAAC,,
5936,R42770,,20,363,ACCCCGCTCAAAACATCCCA,,
5937,R42770,,20,357,CTCAAAACATCCCACAGTGN,,
5938,R42770,,20,351,ACATCCCACAGTGNCGGGGC,,
5939,R42770,,20,345,CACAGTGNCGGGGCCTGAGA,,
5940,R42770,,20,339,GNCGGGGCCTGAGAAACCNC,,

5941,R42770,,20,333,GCCTGAGAAACCNCGGATTT,,
5942,R42770,,20,327,GAAACCNCGGATTTAAGGAA,,
5943,R42770,,20,321,NCGGATTTAAGGAAGTCACC,,
5944,R42770,,20,315,TTAAGGAAGTCACCCNTGAG,,
5945,R42770,,20,309,AAGTCACCCNTGAGTCAAGC,,
5946,R42770,,20,303,CCCNTGAGTCAAGCAGCCCN,,
5947,R42770,,20,297,AGTCAAGCAGCCCNGTTTGN,,
5948,R42770,,20,291,GCAGCCCNGTTTGNAAATAT,,
5949,R42770,,20,285,CNGTTTGNAAATATTGTCCT,,
5950,R42770,,20,279,GNAAATATTGTCCTAATTGC,,
5951,R42770,,20,273,ATTGTCCTAATTGCCCTGAG,,
5952,R42770,,20,267,CTAATTGCCCTGAGAAGNTC,,
5953,R42770,,20,261,GCCCTGAGAAGNTCCTTATT,,
5954,R42770,,20,255,AGAAGNTCCTTATTCATTAG,,
5955,R42770,,20,249,TCCTTATTCATTAGATTTAC,,
5956,R42770,,20,243,TTCATTAGATTTACAGNTTT,,
5957,R42770,,20,237,AGATTTACAGNTTTCCCCTT,,
5958,R42770,,20,231,ACAGNTTTCCCCTTGACTAG,,
5959,R42770,,20,225,TTCCCCTTGACTAGGGGTTT,,
5960,R42770,,20,219,TTGACTAGGGGTTTGAAGNA,,
5961,R42770,,20,213,AGGGGTTTGAAGNACTTACC,,
5962,R42770,,20,207,TTGAAGNACTTACCGAAAAT,,
5963,R42770,,20,201,NACTTACCGAAAATGCAGAT,,
5964,R42770,,20,195,CCGAAAATGCAGATATGTTA,,
5965,R42770,,20,189,ATGCAGATATGTTAAATTTA,,
5966,R42770,,20,183,ATATGTTAAATTTATGATGA,,
5967,R42770,,20,177,TAAATTTATGATGATGGTTT,,
5968,R42770,,20,171,TATGATGATGGTTTGAAAAA,,
5969,R42770,,20,165,GATGGTTTGAAAAACAACGT,,
5970,R42770,,20,159,TTGAAAAACAACGTCTGAAG,,
5971,R42770,,20,153,AACAACGTCTGAAGGAATTN,,
5972,R42770,,20,147,GTCTGAAGGAATTNTATCAA,,
5973,R42770,,20,141,AGGAATTNTATCAAATAACT,,
5974,R42770,,20,135,TNTATCAAATAACTGGTCCA,,
5975,R42770,,20,129,AAATAACTGGTCCAAAATAC,,
5976,R42770,,20,123,CTGGTCCAAAATACGTATTT,,
5977,R42770,,20,117,CAAAATACGTATTTAAATTT,,
5978,R42770,,20,111,ACGTATTTAAATTTAATCTG,,
5979,R42770,,20,105,TTAAATTTAATCTGCAAAAT,,
5980,R42770,,20,99,TTAATCTGCAAAATGTATAC,,
5981,R42770,,20,93,TGCAAAATGTATACACTGAG,,
5982,R42770,,20,87,ATGTATACACTGAGTATTAA,,
5983,R42770,,20,81,ACACTGAGTATTAAAGAAAC,,
5984,R42770,,20,75,AGTATTAAAGAAACAGGAAA,,
5985,R42770,,20,69,AAAGAAACAGGAAATGTGTG,,
5986,R42770,,20,63,ACAGGAAATGTGTGTTTTTA,,
5987,R42770,,20,57,AATGTGTGTTTTTAGTCTTC,,
5988,R42770,,20,51,TGTTTTTAGTCTTCACATCA,,
5989,R42770,,20,45,TAGTCTTCACATCAAAATTG,,
5990,R42770,,20,39,TCACATCAAAATTGCTCTAT,,
5991,R42770,,20,33,CAAAATTGCTCTATTAATGA,,
5992,R42770,,20,27,TGCTCTATTAATGAACAAAT,,
5993,R42770,,20,21,ATTAATGAACAAATAAAAGA,,
5994,R42770,,20,15,GAACAAATAAAAGATTAAGT,,
5995,R42770,,20,9,ATAAAAGATTAAGTTACAAA,,
5996,R42770,,20,3,GATTAAGTTACAAAAAAAAA,,
(GENBANK ACCESSION NO. H93087)
AAAACAAAATTCTGCATTTTTATAAAACTTGATAAAAAATAGTATTTCAAACTGTACAGTCACCAGAAGTACACAGTTATCAAAAAT
GCACACACTTCACTTGGCATCTCCAGCACCTTCAGCTTTCTGTGCCTGGTCTGTTTTGGCATCTCCATTTTCTGCAGGGTTATTCCCCT
CCTTGCCAGCATCAGCTTTTCCCTTTTTCCCTTTGGGTACCTTCTCTCCCTTCTTTGCAGGGGCCTTTTTAGGCTTGGGCTCTGGCTTT
GGAGGAGCAGGTTTCTTTTTTTGGCAGGAAGAGAGGAAAAAGTGAACATCAGTACAATGGACTGAAGAAAACCACCCACAACCAA
CCAAAAGTACCAAGGGTAAGAGAAGTTTCTCCTCCTCCTCAAAAGTTTTTGGTGGTTGGCTTTCTTCTAGAATGTTGGATTTCCAGAA
GCCCACTCAAATGTCCCACTTTGGCTACAGGCATCAGAAATTTCAGAACCAGCNAAACCCCAAGGGGCAAGAGTCCCAAGTAGAGG
CAATGATTCCAAACCAGGCACTAACCATAATTCATGGGAAGCCAAGGGAATGGTTTTTGGANGGTTTTTAGGTTCAGGNCAAG
(SEQ ID NO: 5997)

5998,H93087,,20,588,CTTGNCCTGAACCTAAAAAC,,
5999,H93087,,20,582,CTGAACCTAAAAACCNTCCA,,
6000,H93087,,20,576,CTAAAAACCNTCCAAAAACC,,
6001,H93087,,20,570,ACCNTCCAAAAACCATTCCC,,
6002,H93087,,20,564,CAAAAACCATTCCCTTGGCT,,
6003,H93087,,20,558,CCATTCCCTTGGCTTCCCAT,,
6004,H93087,,20,552,CCTTGGCTTCCCATGAATTA,,
6005,H93087,,20,546,CTTCCCATGAATTATGGTTA,,
6006,H93087,,20,540,ATGAATTATGGTTAGTGCCT,,

6007,H93087,,20,534,TATGGTTAGTGCCTGGTTTG,,
6008,H93087,,20,528,TAGTGCCTGGTTTGGAATCA,,
6009,H93087,,20,522,CTGGTTTGGAATCATTGCCT,,
6010,H93087,,20,516,TGGAATCATTGCCTCTACTT,,
6011,H93087,,20,510,CATTGCCTCTACTTGGGACT,,
6012,H93087,,20,504,CTCTACTTGGGACTCTTGCC,,
6013,H93087,,20,498,TTGGGACTCTTGCCCCTTGG,,
6014,H93087,,20,492,CTCTTGCCCCTTGGGGTTTN,,
6015,H93087,,20,486,CCCCTTGGGGTTTNGCTGGT,,
6016,H93087,,20,480,GGGGTTTNGCTGGTTCTGAA,,
6017,H93087,,20,474,TNGCTGGTTCTGAAATTTCT,,
6018,H93087,,20,468,GTTCTGAAATTTCTGATGCC,,
6019,H93087,,20,462,AAATTTCTGATGCCTGTAGC,,
6020,H93087,,20,456,CTGATGCCTGTAGCCAAAGT,,
6021,H93087,,20,450,CCTGTAGCCAAAGTGGGACA,,
6022,H93087,,20,444,GCCAAAGTGGGACATTTGAG,,
6023,H93087,,20,438,GTGGGACATTTGAGTGGGCT,,
6024,H93087,,20,432,CATTTGAGTGGGCTTCTGGA,,
6025,H93087,,20,426,AGTGGGCTTCTGGAAATCCA,,
6026,H93087,,20,420,CTTCTGGAAATCCAACATTC,,
6027,H93087,,20,414,GAAATCCAACATTCTAGAAG,,
6028,H93087,,20,408,CAACATTCTAGAAGAAAGCC,,
6029,H93087,,20,402,TCTAGAAGAAAGCCAACCAC,,
6030,H93087,,20,396,AGAAAGCCAACCACCAAAAA,,
6031,H93087,,20,390,CCAACCACCAAAAACTTTTG,,
6032,H93087,,20,384,ACCAAAAACTTTTGAGGAGG,,
6033,H93087,,20,378,AACTTTTGAGGAGGAGGAGA,,
6034,H93087,,20,372,TGAGGAGGAGGAGAAACTTC,,
6035,H93087,,20,366,GGAGGAGAAACTTCTCTTAC,,
6036,H93087,,20,360,GAAACTTCTCTTACCCTTGG,,
6037,H93087,,20,354,TCTCTTACCCTTGGTACTTT,,
6038,H93087,,20,348,ACCCTTGGTACTTTTGGTTG,,
6039,H93087,,20,342,GGTACTTTTGGTTGGTTGTG,,
6040,H93087,,20,336,TTTGGTTGGTTGTGGGTGGT,,
6041,H93087,,20,330,TGGTTGTGGGTGGTTTTCTT,,
6042,H93087,,20,324,TGGGTGGTTTTCTTCAGTCC,,
6043,H93087,,20,318,GTTTTCTTCAGTCCATTGTA,,
6044,H93087,,20,312,TTCAGTCCATTGTACTGATG,,
6045,H93087,,20,306,CCATTGTACTGATGTTCACT,,
6046,H93087,,20,300,TACTGATGTTCACTTTTTCC,,
6047,H93087,,20,294,TGTTCACTTTTTCCTCTCTT,,
6048,H93087,,20,288,CTTTTTCCTCTCTTCCTGCC,,
6049,H93087,,20,282,CCTCTCTTCCTGCCAAAAAA,,
6050,H93087,,20,276,TTCCTGCCAAAAAAAGAAAC,,
6051,H93087,,20,270,CCAAAAAAAGAAACCTGCTC,,
6052,H93087,,20,264,AAAGAAACCTGCTCCTCCAA,,
6053,H93087,,20,258,ACCTGCTCCTCCAAAGCCAG,,
6054,H93087,,20,252,TCCTCCAAAGCCAGAGCCCA,,
6055,H93087,,20,246,AAAGCCAGAGCCCAAGCCTA,,
6056,H93087,,20,240,AGAGCCCAAGCCTAAAAAGG,,
6057,H93087,,20,234,CAAGCCTAAAAAGGCCCCTG,,
6058,H93087,,20,228,TAAAAAGGCCCCTGCAAAGA,,
6059,H93087,,20,222,GGCCCCTGCAAAGAAGGGAG,,
6060,H93087,,20,216,TGCAAAGAAGGGAGAGAAGG,,
6061,H93087,,20,210,GAAGGGAGAGAAGGTACCCA,,
6062,H93087,,20,204,AGAGAAGGTACCCAAAGGGA,,
6063,H93087,,20,198,GGTACCCAAAGGGAAAAAGG,,
6064,H93087,,20,192,CAAAGGGAAAAAGGGAAAAG,,
6065,H93087,,20,186,GAAAAAGGGAAAAGCTGATG,,
6066,H93087,,20,180,GGGAAAAGCTGATGCTGGCA,,
6067,H93087,,20,174,AGCTGATGCTGGCAAGGAGG,,
6068,H93087,,20,168,TGCTGGCAAGGAGGGGAATA,,
6069,H93087,,20,162,CAAGGAGGGGAATAACCCTG,,
6070,H93087,,20,156,GGGGAATAACCCTGCAGAAA,,
6071,H93087,,20,150,TAACCCTGCAGAAAATGGAG,,
6072,H93087,,20,144,TGCAGAAAATGGAGATGCCA,,
6073,H93087,,20,138,AAATGGAGATGCCAAAAACAG,,
6074,H93087,,20,132,AGATGCCAAAAACAGACCAGG,,
6075,H93087,,20,126,CAAAACAGACCAGGCACAGA,,
6076,H93087,,20,120,AGACCAGGCACAGAAAGCTG,,
6077,H93087,,20,114,GGCACAGAAAGCTGAAGGTG,,
6078,H93087,,20,108,GAAAGCTGAAGGTGCTGGAG,,
6079,H93087,,20,102,TGAAGGTGCTGGAGATGCCA,,
6080,H93087,,20,96,TGCTGGAGATGCCAAGTGAA,,
6081,H93087,,20,90,AGATGCCAAGTGAAGTGTGT,,

6082,H93087,,20,84,CAAGTGAAGTGTGTGCATTT,,
6083,H93087,,20,78,AAGTGTGTGCATTTTTGATA,,
6084,H93087,,20,72,GTGCATTTTTGATAACTGTG,,
6085,H93087,,20,66,TTTTGATAACTGTGTACTTC,,
6086,H93087,,20,60,TAACTGTGTACTTCTGGTGA,,
6087,H93087,,20,54,TGTACTTCTGGTGACTGTAC,,
6088,H93087,,20,48,TCTGGTGACTGTACAGTTTG,,
6089,H93087,,20,42,GACTGTACAGTTTGAAATAC,,
6090,H93087,,20,36,ACAGTTTGAAATACTATTTT,,
6091,H93087,,20,30,TGAAATACTATTTTTTATCA,,
6092,H93087,,20,24,ACTATTTTTTATCAAGTTTT,,
6093,H93087,,20,18,TTTTATCAAGTTTTATAAAA,,
6094,H93087,,20,12,CAAGTTTTATAAAAATGCAG,,
6095,H93087,,20,6,TTATAAAAATGCAGAATTTT,,
(GENBANK ACCESSION NO. AA486518)
GAAGATGAAGGTGTCTCTCAGAGGAAGTTTCTGGATGGCAACGAGCTCACCCTGGCTGACTGCAACCTGTTGCCAAAGTTACACAT
AGTACAGGTGGTGTGTAAGAAGTACCGGGGATTCACCATCCCCGAGGCCTTCCGGGGAGTGCATCGGTACTTGAGCAATGCCTACG
CCCGGGAAGAATTCGCTTCCACCTGTCCAGATGATGAGGAGATCGAGCTCGCCTATGAGCAAGTGGCAAAGGCCCTCAAATAAGCC
CCTCCTGGGACTCCCTCAACCCCCTCCATTTTCTCCACAAAGGCCCTGGTGGTTTCCACATTGCTACCCAATGGACACACTCCAAAA
TGGCCAGTGGGCAGGGAATCCTGGAGCACTTGTTCCGGGATGGTGTGGTGGAAGAGGGGATGAGGGAAAGAAATGGGGGGCCTGG
GTCAGATTTTTATTGTGGGGTGGGATGAGTAGGACAACATATTTCAGTAATAAAATACAGAATAAAAATC
(SEQ ID NO: 6096)

6097,AA486518,,20,481,GATTTTTATTCTGTATTTTA,,
6098,AA486518,,20,475,TATTCTGTATTTTATTACTG,,
6099,AA486518,,20,469,GTATTTTATTACTGAAATAT,,
6100,AA486518,,20,463,TATTACTGAAATATGTTGTC,,
6101,AA486518,,20,457,TGAAATATGTTGTCCTACTC,,
6102,AA486518,,20,451,ATGTTGTCCTACTCATCCCA,,
6103,AA486518,,20,445,TCCTACTCATCCCACCCCAC,,
6104,AA486518,,20,439,TCATCCCACCCCACAATAAA,,
6105,AA486518,,20,433,CACCCCACAATAAAAATCTG,,
6106,AA486518,,20,427,ACAATAAAAATCTGACCCAG,,
6107,AA486518,,20,421,AAAATCTGACCCAGGCCCCC,,
6108,AA486518,,20,415,TGACCCAGGCCCCCCATTTC,,
6109,AA486518,,20,409,AGGCCCCCCATTTCTTTCCC,,
6110,AA486518,,20,403,CCCATTTCTTTCCCTCATCC,,
6111,AA486518,,20,397,TCTTTCCCTCATCCCCTCTT,,
6112,AA486518,,20,391,CCTCATCCCCTCTTCCACCA,,
6113,AA486518,,20,385,CCCCTCTTCCACCACACCAT,,
6114,AA486518,,20,379,TTCCACCACACCATCCCGGA,,
6115,AA486518,,20,373,CACACCATCCCGGAACAAGT,,
6116,AA486518,,20,367,ATCCCGGAACAAGTGCTCCA,,
6117,AA486518,,20,361,GAACAAGTGCTCCAGGATTC,,
6118,AA486518,,20,355,GTGCTCCAGGATTCCCTGCC,,
6119,AA486518,,20,349,CAGGATTCCCTGCCCACTGG,,
6120,AA486518,,20,343,TCCCTGCCCACTGGCCATTT,,
6121,AA486518,,20,337,CCCACTGGCCATTTTGGAGT,,
6122,AA486518,,20,331,GGCCATTTTGGAGTGTGTCC,,
6123,AA486518,,20,325,TTTGGAGTGTGTCCATTGGG,,
6124,AA486518,,20,319,GTGTGTCCATTGGGTAGCAA,,
6125,AA486518,,20,313,CCATTGGGTAGCAATGTGGA,,
6126,AA486518,,20,307,GGTAGCAATGTGGAAACCAC,,
6127,AA486518,,20,301,AATGTGGAAACCACCAGGGC,,
6128,AA486518,,20,295,GAAACCACCAGGGCCTTTGT,,
6129,AA486518,,20,289,ACCAGGGCCTTTGTGGAGAA,,
6130,AA486518,,20,283,GCCTTTGTGGAGAAAATGGA,,
6131,AA486518,,20,277,GTGGAGAAAATGGAGGGGGT,,
6132,AA486518,,20,271,AAAATGGAGGGGGTTGAGGG,,
6133,AA486518,,20,265,GAGGGGGTTGAGGGAGTCCC,,
6134,AA486518,,20,259,GTTGAGGGAGTCCCAGGAGG,,
6135,AA486518,,20,253,GGAGTCCCAGGAGGGGGCTTA,,
6136,AA486518,,20,247,CCAGGAGGGGCTTATTTGAG,,
6137,AA486518,,20,241,GGGGCTTATTTGAGGGCCTT,,
6138,AA486518,,20,235,TATTTGAGGGCCTTTGCCAC,,
6139,AA486518,,20,229,AGGGCCTTTGCCACTTGCTC,,
6140,AA486518,,20,223,TTTGCCACTTGCTCATAGGC,,
6141,AA486518,,20,217,ACTTGCTCATAGGCGAGCTC,,
6142,AA486518,,20,211,TCATAGGCGAGCTCGATCTC,,
6143,AA486518,,20,205,GCGAGCTCGATCTCCTCATC,,
6144,AA486518,,20,199,TCGATCTCCTCATCATCTGG,,
6145,AA486518,,20,193,TCCTCATCATCTGGACAGGT,,
6146,AA486518,,20,187,TCATCTGGACAGGTGGAAGC,,
6147,AA486518,,20,181,GGACAGGTGGAAGCGAATTC,,
6148,AA486518,,20,175,GTGGAAGCGAATTCTTCCCG,,

6149,AA486518,,20,169,GCGAATTCTTCCCGGGCGTA,,
6150,AA486518,,20,163,TCTTCCCGGGCGTAGGCATT,,
6151,AA486518,,20,157,CGGGCGTAGGCATTGCTCAA,,
6152,AA486518,,20,151,TAGGCATTGCTCAAGTACCG,,
6153,AA486518,,20,145,TTGCTCAAGTACCGATGCAC,,
6154,AA486518,,20,139,AAGTACCGATGCACTCCCCG,,
6155,AA486518,,20,133,CGATGCACTCCCCGGAAGGC,,
6156,AA486518,,20,127,ACTCCCCGGAAGGCCTCGGG,,
6157,AA486518,,20,121,CGGAAGGCCTCGGGGATGGT,,
6158,AA486518,,20,115,GCCTCGGGGATGGTGAATCC,,
6159,AA486518,,20,109,GGGATGGTGAATCCCCGGTA,,
6160,AA486518,,20,103,GTGAATCCCCGGTACTTCTT,,
6161,AA486518,,20,97,CCCCGGTACTTCTTACACAC,,
6162,AA486518,,20,91,TACTTCTTACACACCACCTG,,
6163,AA486518,,20,85,TTACACACCACCTGTACTAT,,
6164,AA486518,,20,79,ACCACCTGTACTATGTGTAA,,
6165,AA486518,,20,73,TGTACTATGTGTAACTTTGG,,
6166,AA486518,,20,67,ATGTGTAACTTTGGCAACAG,,
6167,AA486518,,20,61,AACTTTGGCAACAGGTTGCA,,
6168,AA486518,,20,55,GGCAACAGGTTGCAGTCAGC,,
6169,AA486518,,20,49,AGGTTGCAGTCAGCCAGGGT,,
6170,AA486518,,20,43,CAGTCAGCCAGGGTGAGCTC,,
6171,AA486518,,20,37,GCCAGGGTGAGCTCGTTGCC,,
6172,AA486518,,20,31,GTGAGCTCGTTGCCATCCAG,,
6173,AA486518,,20,25,TCGTTGCCATCCAGAAACTT,,
6174,AA486518,,20,19,CCATCCAGAAACTTCCTCTG,,
6175,AA486518,,20,13,AGAAACTTCCTCTGAGAGAC,,
6176,AA486518,,20,7,TTCCTCTGAGAGACACCTTC,,
6177,AA486518,,20,1,TGAGAGACACCTTCATCTTC,,
(GENBANK ACCESSION NO. AA464729)
TCTGCTTTTCCAACTTTATTTAGAAAAACAAATCCAGGTCCCATGGCCAAGAAGCATGCTGGCGAGCGCGATAAGAAGCTGGCGGC
CAAGAAAAAGACGGACAAGAAGCGGGCGCTGCGGGGCTGTAGTGGGCTCTCTTCCTCCTTCCACCGTGACCCCAACCTCTCCTGTC
CCCTCCCTCCAACTCTGTCTCTAAGTT
(SEQ ID NO: 6178)

6179,AA464729,,20,180,AACTTAGAGACAGAGTTGGA,,
6180,AA464729,,20,174,GAGACAGAGTTGGAGGGAGG,,
6181,AA464729,,20,168,GAGTTGGAGGGAGGGGACAG,,
6182,AA464729,,20,162,GAGGGAGGGGACAGGAGAGG,,
6183,AA464729,,20,156,GGGGACAGGAGAGGTTGGGG,,
6184,AA464729,,20,150,AGGAGAGGTTGGGGTCACGG,,
6185,AA464729,,20,144,GGTTGGGGTCACGGTGGAAG,,
6186,AA464729,,20,138,GGTCACGGTGGAAGGAGGAA,,
6187,AA464729,,20,132,GGTGGAAGGAGGAAGAGAGC,,
6188,AA464729,,20,126,AGGAGGAAGAGAGCCCACTA,,
6189,AA464729,,20,120,AAGAGAGCCCACTACAGCCC,,
6190,AA464729,,20,114,GCCCACTACAGCCCCGCAGC,,
6191,AA464729,,20,108,TACAGCCCCGCAGCGCCCGC,,
6192,AA464729,,20,102,CCCGCAGCGCCCGCTTCTTG,,
6193,AA464729,,20,96,GCGCCCGCTTCTTGTCCGTC,,
6194,AA464729,,20,90,GCTTCTTGTCCGTCTTTTTC,,
6195,AA464729,,20,84,TGTCCGTCTTTTTCTTGGCC,,
6196,AA464729,,20,78,TCTTTTTCTTGGCCGCCAGC,,
6197,AA464729,,20,72,TCTTGGCCGCCAGCTTCTTA,,
6198,AA464729,,20,66,CCGCCAGCTTCTTATCGCGC,,
6199,AA464729,,20,60,GCTTCTTATCGCGCTCGCCA,,
6200,AA464729,,20,54,TATCGCGCTCGCCAGCATGC,,
6201,AA464729,,20,48,GCTCGCCAGCATGCTTCTTG,,
6202,AA464729,,20,42,CAGCATGCTTCTTGGCCATG,,
6203,AA464729,,20,36,GCTTCTTGGCCATGGGACCT,,
6204,AA464729,,20,30,TGGCCATGGGACCTGGATTT,,
6205,AA464729,,20,24,TGGGACCTGGATTTGTTTTT,,
6206,AA464729,,20,18,CTGGATTTGTTTTTCTAAAT,,
6207,AA464729,,20,12,TTGTTTTTCTAAATAAAGTT,,
6208,AA464729,,20,6,TTCTAAATAAAGTTGGAAAA,,
(GENBANK ACCESSION NO. AA180912)
GTGGTCGAGCCCTACAACTCTATCCTGACCACCCACACCACCCTGGAGCACTCAGACTGTGCCTTCATGGTGGACAACGAAGCAAT
CTATGACATCTGCCGCCGCAACCTAGACATCGAGCGCCCAACCTACACCAACCTCAATCGCCTCATTAGCCAAATTGTCTCCTCCAT
CACAGCTTCTCTGCGCTTTGACGGGGCCCTCAATGTGGACCTGACAGAGTTCCAGACCAACCTGGTGCCCTACCCTCGCATCCACTT
CCCCCTGGCCACCTATGCACCAGTCATCTCTGCAGAAAAGGCATACCACGAGCAGCTGTCGGTGGCAGAGATCACCAATGCCTGCT
TTTGAGCCTNCCAACCAGANGGTAAAGTGTGATTCCCGG
(SEQ ID NO: 6209)

6210,AA180912,,20,366,CCGGGAATCACACTTTACCN,,
6211,AA180912,,20,360,ATCACACTTTACCNTCTGGT,,

6212,AA180912,,20,354,CTTTACCNTCTGGTTGGNAG,,
6213,AA180912,,20,348,CNTCTGGTTGGNAGGCTCAA,,
6214,AA180912,,20,342,GTTGGNAGGCTCAAAAGCAG,,
6215,AA180912,,20,336,AGGCTCAAAAGCAGGCATTG,,
6216,AA180912,,20,330,AAAAGCAGGCATTGGTGATC,,
6217,AA180912,,20,324,AGGCATTGGTGATCTCTGCC,,
6218,AA180912,,20,318,TGGTGATCTCTGCCACCGAC,,
6219,AA180912,,20,312,TCTCTGCCACCGACAGCTGC,,
6220,AA180912,,20,306,CCACCGACAGCTGCTCGTGG,,
6221,AA180912,,20,300,ACAGCTGCTCGTGGTATGCC,,
6222,AA180912,,20,294,GCTCGTGGTATGCCTTTTCT,,
6223,AA180912,,20,288,GGTATGCCTTTTCTGCAGAG,,
6224,AA180912,,20,282,CCTTTTCTGCAGAGATGACT,,
6225,AA180912,,20,276,CTGCAGAGATGACTGGTGCA,,
6226,AA180912,,20,270,AGATGACTGGTGCATAGGTG,,
6227,AA180912,,20,264,CTGGTGCATAGGTGGCCAGG,,
6228,AA180912,,20,258,CATAGGTGGCCAGGGGGAAG,,
6229,AA180912,,20,252,TGGCCAGGGGGAAGTGGATG,,
6230,AA180912,,20,246,GGGGGAAGTGGATGCGAGGG,,
6231,AA180912,,20,240,AGTGGATGCGAGGGTAGGGC,,
6232,AA180912,,20,234,TGCGAGGGTAGGGCACCAGG,,
6233,AA180912,,20,228,GGTAGGGCACCAGGTTGGTC,,
6234,AA180912,,20,222,GCACCAGGTTGGTCTGGAAC,,
6235,AA180912,,20,216,GGTTGGTCTGGAACTCTGTC,,
6236,AA180912,,20,210,TCTGGAACTCTGTCAGGTCC,,
6237,AA180912,,20,204,ACTCTGTCAGGTCCACATTG,,
6238,AA180912,,20,198,TCAGGTCCACATTGAGGGCC,,
6239,AA180912,,20,192,CCACATTGAGGGCCCCGTCA,,
6240,AA180912,,20,186,TGAGGGCCCCGTCAAAGCGC,,
6241,AA180912,,20,180,CCCCGTCAAAGCGCAGAGAA,,
6242,AA180912,,20,174,CAAAGCGCAGAGAAGCTGTG,,
6243,AA180912,,20,168,GCAGAGAAGCTGTGATGGAG,,
6244,AA180912,,20,162,AAGCTGTGATGGAGGAGACA,,
6245,AA180912,,20,156,TGATGGAGGAGACAATTTGG,,
6246,AA180912,,20,150,AGGAGACAATTTGGCTAATG,,
6247,AA180912,,20,144,CAATTTGGCTAATGAGGCGA,,
6248,AA180912,,20,138,GGCTAATGAGGCGATTGAGG,,
6249,AA180912,,20,132,TGAGGCGATTGAGGTTGGTG,,
6250,AA180912,,20,126,GATTGAGGTTGGTGTAGGTT,,
6251,AA180912,,20,120,GGTTGGTGTAGGTTGGGCGC,,
6252,AA180912,,20,114,TGTAGGTTGGGCGCTCGATG,,
6253,AA180912,,20,108,TTGGGCGCTCGATGTCTAGG,,
6254,AA180912,,20,102,GCTCGATGTCTAGGTTGCGG,,
6255,AA180912,,20,96,TGTCTAGGTTGCGGCGGCAG,,
6256,AA180912,,20,90,GGTTGCGGCGGCAGATGTCA,,
6257,AA180912,,20,84,GGCGGCAGATGTCATAGATT,,
6258,AA180912,,20,78,AGATGTCATAGATTGCTTCG,,
6259,AA180912,,20,72,CATAGATTGCTTCGTTGTCC,,
6260,AA180912,,20,66,TTGCTTCGTTGTCCACCATG,,
6261,AA180912,,20,60,CGTTGTCCACCATGAAGGCA,,
6262,AA180912,,20,54,CCACCATGAAGGCACAGTCT,,
6263,AA180912,,20,48,TGAAGGCACAGTCTGAGTGC,,
6264,AA180912,,20,42,CACAGTCTGAGTGCTCCAGG,,
6265,AA180912,,20,36,CTGAGTGCTCCAGGGTGGTG,,
6266,AA180912,,20,30,GCTCCAGGGTGGTGTGGGTG,,
6267,AA180912,,20,24,GGGTGGTGTGGGTGGTCAGG,,
6268,AA180912,,20,18,TGTGGGTGGTCAGGATAGAG,,
6269,AA180912,,20,12,TGGTCAGGATAGAGTTGTAG,,
6270,AA180912,,20,6,GGATAGAGTTGTAGGGCTCG,,
(GENBANK ACCESSION NO. AA436142)
TGCAGACAAAGTAAAATTTATTGAGACAGACAGAAATGCACCTACTCAGGACTACAGTTAAGCATTTACTATTAACCAAAGAGTTG
TGTTCACATTCCAGATAAGTCTACGTGGAAAAGCATTCAGAATTTACTAGGTTTTTGCTACATCACTATTTCATCTACAATAGGGACA
ACAAACTGACACTCAGGATTTGATGGGCTCTCATTACAATGCTATACATTTAACAGGAACAAACATCAGTGACTTTGAGAAAAAGTT
ATAAAAAGACCAAAACCACCCACTGTAGAATGGGCTCTTGGATGTTACTGTACAGCGTGGTCAAGGTAACAAGAAGAAAAAAATGT
GAGTGGCATCCTGGGATGAGCCGGGGGACAGACCTGGACAGACACGTTGTCATTTGCTGCTGTGGGTAGGAAAATGGGCGTAAAGG
AGGAGAAACAGATA
(SEQ ID NO: 6271)

6272,AA436142,,20,428,TATCTGTTTCTCCTCCTTTA,,
6273,AA436142,,20,422,TTTCTCCTCCTTTACGCCCA,,
6274,AA436142,,20,416,CTCCTTTACGCCCATTTTCC,,
6275,AA436142,,20,410,TACGCCCATTTTCCTACCCA,,
6276,AA436142,,20,404,CATTTTCCTACCCACAGCAG,,
6277,AA436142,,20,398,CCTACCCACAGCAGCAAATG,,
6278,AA436142,,20,392,CACAGCAGCAAATGACAACG,,

6279,AA436142,,20,386,AGCAAATGACAACGTGTCTG,,
6280,AA436142,,20,380,TGACAACGTGTCTGTCCAGG,,
6281,AA436142,,20,374,CGTGTCTGTCCAGGTCTGTC,,
6282,AA436142,,20,368,TGTCCAGGTCTGTCCCCCGG,,
6283,AA436142,,20,362,GGTCTGTCCCCCGGCTCATC,,
6284,AA436142,,20,356,TCCCCCGGCTCATCCCAGGA,,
6285,AA436142,,20,350,GGCTCATCCCAGGATGCCAC,,
6286,AA436142,,20,344,TCCCAGGATGCCACTCACAT,,
6287,AA436142,,20,338,GATGCCACTCACATTTTTTT,,
6288,AA436142,,20,332,ACTCACATTTTTTTCTTCTT,,
6289,AA436142,,20,326,ATTTTTTTCTTCTTGTTACC,,
6290,AA436142,,20,320,TTCTTCTTGTTACCTTGACC,,
6291,AA436142,,20,314,TTGTTACCTTGACCACGCTG,,
6292,AA436142,,20,308,CCTTGACCACGCTGTACAGT,,
6293,AA436142,,20,302,CCACGCTGTACAGTAACATC,,
6294,AA436142,,20,296,TGTACAGTAACATCCAAGAG,,
6295,AA436142,,20,290,GTAACATCCAAGAGCCCATT,,
6296,AA436142,,20,284,TCCAAGAGCCCATTCTACAG,,
6297,AA436142,,20,278,AGCCCATTCTACAGTGGGTG,,
6298,AA436142,,20,272,TTCTACAGTGGGTGGTTTTG,,
6299,AA436142,,20,266,AGTGGGTGGTTTTGGTCTTT,,
6300,AA436142,,20,260,TGGTTTTGGTCTTTTTATAA,,
6301,AA436142,,20,254,TGGTCTTTTTATAACTTTTT,,
6302,AA436142,,20,248,TTTTATAACTTTTTCTCAAA,,
6303,AA436142,,20,242,AACTTTTTCTCAAAGTCACT,,
6304,AA436142,,20,236,TTCTCAAAGTCACTGATGTT,,
6305,AA436142,,20,230,AAGTCACTGATGTTTGTTCC,,
6306,AA436142,,20,224,CTGATGTTTGTTCCTGTTAA,,
6307,AA436142,,20,218,TTTGTTCCTGTTAAATGTAT,,
6308,AA436142,,20,212,CCTGTTAAATGTATAGCATT,,
6309,AA436142,,20,206,AAATGTATAGCATTGTAATG,,
6310,AA436142,,20,200,ATAGCATTGTAATGAGAGCC,,
6311,AA436142,,20,194,TTGTAATGAGAGCCCATCAA,,
6312,AA436142,,20,188,TGAGAGCCCATCAAATCCTG,,
6313,AA436142,,20,182,CCCATCAAATCCTGAGTGTC,,
6314,AA436142,,20,176,AAATCCTGAGTGTCAGTTTG,,
6315,AA436142,,20,170,TGAGTGTCAGTTTGTTGTCC,,
6316,AA436142,,20,164,TCAGTTTGTTGTCCCTATTG,,
6317,AA436142,,20,158,TGTTGTCCCTATTGTAGATG,,
6318,AA436142,,20,152,CCCTATTGTAGATGAAATAG,,
6319,AA436142,,20,146,TGTAGATGAAATAGTGATGT,,
6320,AA436142,,20,140,TGAAATAGTGATGTAGCAAA,,
6321,AA436142,,20,134,AGTGATGTAGCAAAAACCTA,,
6322,AA436142,,20,128,GTAGCAAAAACCTAGTAAAT,,
6323,AA436142,,20,122,AAAACCTAGTAAATTCTGAA,,
6324,AA436142,,20,116,TAGTAAATTCTGAATGCTTT,,
6325,AA436142,,20,110,ATTCTGAATGCTTTTCCACG,,
6326,AA436142,,20,104,AATGCTTTTCCACGTAGACT,,
6327,AA436142,,20,98,TTTCCACGTAGACTTATCTG,,
6328,AA436142,,20,92,CGTAGACTTATCTGGAATGT,,
6329,AA436142,,20,86,CTTATCTGGAATGTGAACAC,,
6330,AA436142,,20,80,TGGAATGTGAACACAACTCT,,
6331,AA436142,,20,74,GTGAACACAACTCTTTGGTT,,
6332,AA436142,,20,68,ACAACTCTTTGGTTAATAGT,,
6333,AA436142,,20,62,CTTTGGTTAATAGTAAATGC,,
6334,AA436142,,20,56,TTAATAGTAAATGCTTAACT,,
6335,AA436142,,20,50,GTAAATGCTTAACTGTAGTC,,
6336,AA436142,,20,44,GCTTAACTGTAGTCCTGAGT,,
6337,AA436142,,20,38,CTGTAGTCCTGAGTAGGTGC,,
6338,AA436142,,20,32,TCCTGAGTAGGTGCATTTCT,,
6339,AA436142,,20,26,GTAGGTGCATTTCTGTCTGT,,
6340,AA436142,,20,20,GCATTTCTGTCTGTCTCAAT,,
6341,AA436142,,20,14,CTGTCTGTCTCAATAAATTT,,
6342,AA436142,,20,8,GTCTCAATAAATTTTACTTT,,
6343,AA436142,,20,2,ATAAATTTTACTTTGTCTGC,,
(GENBANK ACCESSION NO. H05893)
TTTTTTTTTTNACCTTGGGGATAAAAGTCTTTATTGAACAACCTTATCTCACTCAGTAACAAAAGAGCAGGAGGCGACAATTCCCCC
AGAAGTCTGCAGCCGTGTCCACCCTTGGCAGCAGGATGCATGTCCTGCTGATAACATCAGCTGCAGTTCAGAGCCCCTGGTGGTCAC
TTAGAGATCATAATTGGGGTTCTTCCGAAGATTAACAAAACCTTCCAGAATGGGGGTAACAGGAAGAAACTCCTCAGTGGCCAATT
CTGCCCGTTCCCCGTGGCCAACAACACTGGGGTTGTATGCGTCTGGAACCCTGTGATAGTCTTCGGNTTGCCAGCCTGGGCCCACC
ACATCCACTGCCTGGGCCCACACGGACAGACACTGGGCAATGGGCCGCAGTTTCCTCATCAAACGTAAACCAGGCATTTCGGGGGT
(SEQ ID NO: 6344)

6345,H05893,,20,414,ACCCCCGAAATGCCTGGTTT,,
6346,H05893,,20,408,GAAATGCCTGGTTTACGTTT,,

6347,H05893,,20,402,CCTGGTTTACGTTTGATGAG,,
6348,H05893,,20,396,TTACGTTTGATGAGGAAACT,,
6349,H05893,,20,390,TTGATGAGGAAACTGCGGCC,,
6350,H05893,,20,384,AGGAAACTGCGGCCCATTGC,,
6351,H05893,,20,378,CTGCGGCCCATTGCCCAGTG,,
6352,H05893,,20,372,CCCATTGCCCAGTGTCTGTC,,
6353,H05893,,20,366,GCCCAGTGTCTGTCCGTGTG,,
6354,H05893,,20,360,TGTCTGTCCGTGTGGGCCCA,,
6355,H05893,,20,354,TCCGTGTGGGCCCAGGCAGT,,
6356,H05893,,20,348,TGGGCCCAGGCAGTGGATGT,,
6357,H05893,,20,342,CAGGCAGTGGATGTGGTGGG,,
6358,H05893,,20,336,GTGGATGTGGTGGGCCCAGG,,
6359,H05893,,20,330,GTGGTGGGCCCAGGCTGGCA,,
6360,H05893,,20,324,GGCCCAGGCTGGCAANCCGA,,
6361,H05893,,20,318,GGCTGGCAANCCGAAGACTA,,
6362,H05893,,20,312,CAANCCGAAGACTATCACAG,,
6363,H05893,,20,306,GAAGACTATCACAGGGTTCC,,
6364,H05893,,20,300,TATCACAGGGTTCCAGACGC,,
6365,H05893,,20,294,AGGGTTCCAGACGCATACAA,,
6366,H05893,,20,288,CCAGACGCATACAACCCCAG,,
6367,H05893,,20,282,GCATACAACCCCAGTGTTGT,,
6368,H05893,,20,276,AACCCCAGTGTTGTTGGCCC,,
6369,H05893,,20,270,AGTGTTGTTGGCCCACGGGG,,
6370,H05893,,20,264,GTTGGCCCACGGGGAACGGG,,
6371,H05893,,20,258,CCACGGGGAACGGGCAGAAT,,
6372,H05893,,20,252,GGAACGGGCAGAATTGGCCA,,
6373,H05893,,20,246,GGCAGAATTGGCCACTGAGG,,
6374,H05893,,20,240,ATTGGCCACTGAGGAGTTTC,,
6375,H05893,,20,234,CACTGAGGAGTTTCTTCCTG,,
6376,H05893,,20,228,GGAGTTTCTTCCTGTTACCC,,
6377,H05893,,20,222,TCTTCCTGTTACCCCCATTC,,
6378,H05893,,20,216,TGTTACCCCCATTCTGGAAG,,
6379,H05893,,20,210,CCCCATTCTGGAAGGTTTTG,,
6380,H05893,,20,204,TCTGGAAGGTTTTGTTAATC,,
6381,H05893,,20,198,AGGTTTTGTTAATCTTCGGA,,
6382,H05893,,20,192,TGTTAATCTTCGGAAGAACC,,
6383,H05893,,20,186,TCTTCGGAAGAACCCCAATT,,
6384,H05893,,20,180,GAAGAACCCCAATTATGATC,,
6385,H05893,,20,174,CCCCAATTATGATCTCTAAG,,
6386,H05893,,20,168,TTATGATCTCTAAGTGACCA,,
6387,H05893,,20,162,TCTCTAAGTGACCACCAGGG,,
6388,H05893,,20,156,AGTGACCACCAGGGGCTCTG,,
6389,H05893,,20,150,CACCAGGGGCTCTGAACTGC,,
6390,H05893,,20,144,GGGCTCTGAACTGCAGCTGA,,
6391,H05893,,20,138,TGAACTGCAGCTGATGTTAT,,
6392,H05893,,20,132,GCAGCTGATGTTATCAGCAG,,
6393,H05893,,20,126,GATGTTATCAGCAGGACATG,,
6394,H05893,,20,120,ATCAGCAGGACATGCATCCT,,
6395,H05893,,20,114,AGGACATGCATCCTGCTGCC,,
6396,H05893,,20,108,TGCATCCTGCTGCCAAGGGT,,
6397,H05893,,20,102,CTGCTGCCAAGGGTGGACAC,,
6398,H05893,,20,96,CCAAGGGTGGACACGGCTGC,,
6399,H05893,,20,90,GTGGACACGGCTGCAGACTT,,
6400,H05893,,20,84,ACGGCTGCAGACTTCTGGGG,,
6401,H05893,,20,78,GCAGACTTCTGGGGGAATTG,,
6402,H05893,,20,72,TTCTGGGGGAATTGTCGCCT,,
6403,H05893,,20,66,GGGAATTGTCGCCTCCTGCT,,
6404,H05893,,20,60,TGTCGCCTCCTGCTCTTTTG,,
6405,H05893,,20,54,CTCCTGCTCTTTTGTTACTG,,
6406,H05893,,20,48,CTCTTTTGTTACTGAGTGAG,,
6407,H05893,,20,42,TGTTACTGAGTGAGATAAGG,,
6408,H05893,,20,36,TGAGTGAGATAAGGTTGTTC,,
6409,H05893,,20,30,AGATAAGGTTGTTCAATAAA,,
6410,H05893,,20,24,GGTTGTTCAATAAAGACTTT,,
6411,H05893,,20,18,TCAATAAAGACTTTTATCCC,,
6412,H05893,,20,12,AAGACTTTTATCCCCAAGGT,,
6413,H05893,,20,6,TTTATCCCCAAGGTNAAAAA,,
(GENBANK ACCESSION NO. H37989)
GCACGNGGAGGCCTAAGNAGAGCCCCATCACCTCAGGCTTCTCAGTTCCCTTAGCCGTCTTACTCAACTACCCCTTTCCTCTCCCTC
AGAATTTGTGTTTGCTGCCTCTATCTTGTTTTTTGTTTTTTCTTCTGGGGGGGGTCTAGAACAGTGCCTGGCACATAGTAGGCGCTCA
ATAAATACTTGTTTGTTGAATGTCTCCTCTCTCTTTCCACTCTGGGAAACCTAGGTTTCTGCCATTCTGGGTGACCCTGTATTTCTTTC
TGGTGCCCATTCCATTTGTCCAGTTAATACTTCCTCTTAAAAATCTCCAAGAAGCTGGGTCTCCAGATCCCATTTAGAACCAACCAG
GTGCTGAAAACACATGTAGATAATGGCCATCATCCTAAGCCCAAAGTAGAAAATGGTAGAAGNGTAGTGGGTAGAAGNCACTATAT
AAGGAAG
(SEQ ID NO: 6414)

6415,H37989,,20,425,CTTCCTTATATAGTGNCTTC,,
6416,H37989,,20,419,TATATAGTGNCTTCTACCCA,,
6417,H37989,,20,413,GTGNCTTCTACCCACTACNC,,
6418,H37989,,20,407,TCTACCCACTACNCTTCTAC,,
6419,H37989,,20,401,CACTACNCTTCTACCATTTT,,
6420,H37989,,20,395,NCTTCTACCATTTTCTACTT,,
6421,H37989,,20,389,ACCATTTTCTACTTTGGGCT,,
6422,H37989,,20,383,TTCTACTTTGGGCTTAGGAT,,
6423,H37989,,20,377,TTTGGGCTTAGGATGATGGC,,
6424,H37989,,20,371,CTTAGGATGATGGCCATTAT,,
6425,H37989,,20,365,ATGATGGCCATTATCTACAT,,
6426,H37989,,20,359,GCCATTATCTACATGTGTTT,,
6427,H37989,,20,353,ATCTACATGTGTTTTCAGCA,,
6428,H37989,,20,347,ATGTGTTTTCAGCACCTGGT,,
6429,H37989,,20,341,TTTCAGCACCTGGTTGGTTC,,
6430,H37989,,20,335,CACCTGGTTGGTTCTAAATG,,
6431,H37989,,20,329,GTTGGTTCTAAATGGGATCT,,
6432,H37989,,20,323,TCTAAATGGGATCTGGAGAC,,
6433,H37989,,20,317,TGGGATCTGGAGACCCAGCT,,
6434,H37989,,20,311,CTGGAGACCCAGCTTCTTGG,,
6435,H37989,,20,305,ACCCAGCTTCTTGGAGATTT,,
6436,H37989,,20,299,CTTCTTGGAGATTTTTAAGA,,
6437,H37989,,20,293,GGAGATTTTTAAGAGGAAGT,,
6438,H37989,,20,287,TTTTAAGAGGAAGTATTAAC,,
6439,H37989,,20,281,GAGGAAGTATTAACTGGACA,,
6440,H37989,,20,275,GTATTAACTGGACAAATGGA,,
6441,H37989,,20,269,ACTGGACAAATGGAATGGGC,,
6442,H37989,,20,263,CAAATGGAATGGGCACCAGA,,
6443,H37989,,20,257,GAATGGGCACCAGAAAGAAA,,
6444,H37989,,20,251,GCACCAGAAAGAAATACAGG,,
6445,H37989,,20,245,GAAAGAAATACAGGGTCACC,,
6446,H37989,,20,239,AATACAGGGTCACCCAGAAT,,
6447,H37989,,20,233,GGGTCACCCAGAATGGCAGA,,
6448,H37989,,20,227,CCCAGAATGGCAGAAACCTA,,
6449,H37989,,20,221,ATGGCAGAAACCTAGGTTTC,,
6450,H37989,,20,215,GAAACCTAGGTTTCCCAGAG,,
6451,H37989,,20,209,TAGGTTTCCCAGAGTGGAAA,,
6452,H37989,,20,203,TCCCAGAGTGGAAAGAGAGA,,
6453,H37989,,20,197,AGTGGAAAGAGAGAGGAGAC,,
6454,H37989,,20,191,AAGAGAGAGGAGACATTCAA,,
6455,H37989,,20,185,GAGGAGACATTCAACAAACA,,
6456,H37989,,20,179,ACATTCAACAAACAAGTATT,,
6457,H37989,,20,173,AACAAACAAGTATTTATTGA,,
6458,H37989,,20,167,CAAGTATTTATTGAGCGCCT,,
6459,H37989,,20,161,TTTATTGAGCGCCTACTATG,,
6460,H37989,,20,155,GAGCGCCTACTATGTGCCAG,,
6461,H37989,,20,149,CTACTATGTGCCAGGCACTG,,
6462,H37989,,20,143,TGTGCCAGGCACTGTTCTAG,,
6463,H37989,,20,137,AGGCACTGTTCTAGACCCCC,,
6464,H37989,,20,131,TGTTCTAGACCCCCCCCAGA,,
6465,H37989,,20,125,AGACCCCCCCCAGAAGAAAA,,
6466,H37989,,20,119,CCCCCAGAAGAAAAAACAAA,,
6467,H37989,,20,113,GAAGAAAAAACAAAAAACAA,,
6468,H37989,,20,107,AAAACAAAAAACAAGATAGA,,
6469,H37989,,20,101,AAAAACAAGATAGAGGCAGC,,
6470,H37989,,20,95,AAGATAGAGGCAGCAAACAC,,
6471,H37989,,20,89,GAGGCAGCAAACACAAATTC,,
6472,H37989,,20,83,GCAAACACAAATTCTGAGGG,,
6473,H37989,,20,77,ACAAATTCTGAGGGAGAGGA,,
6474,H37989,,20,71,TCTGAGGGAGAGGAAAGGGG,,
6475,H37989,,20,65,GGAGAGGAAAGGGGTAGTTG,,
6476,H37989,,20,59,GAAAGGGGTAGTTGAGTAAG,,
6477,H37989,,20,53,GGTAGTTGAGTAAGACGGCT,,
6478,H37989,,20,47,TGAGTAAGACGGCTAAGGGA,,
6479,H37989,,20,41,AGACGGCTAAGGGAACTGAG,,
6480,H37989,,20,35,CTAAGGGAACTGAGAAGCCT,,
6481,H37989,,20,29,GAACTGAGAAGCCTGAGGTG,,
6482,H37989,,20,23,AGAAGCCTGAGGTGATGGGG,,
6483,H37989,,20,17,CTGAGGTGATGGGGCTCTNC,,
6484,H37989,,20,11,TGATGGGGCTCTNCTTAGGC,,
6485,H37989,,20,5,GGCTCTNCTTAGGCCTCCNC,,
(GENBANK ACCESSION NO. AA486238)
AAAGGGGACACCTAGTTTGGTTGTCATTTGGCAAAGGAGATGACTTAAAATCCGCTTAATCTCTTCCAGTGTCCGTGTTAATGTATTT
GGCTATTAGATCACTAGCACTGCTTTACCGCTCCTCATCGCCAACACCCCCATGCTCTGTGGCCTTCTTACACTTCTCAGAGGGCAGA

GTGGCAGCCGGGCACCCTACAGAAACTCAGAGGGCAGAGTGGCAGCCAGGCCCACATGTCTCTCAAGTACCTGTCCCCTCGCTCTG
GTGATTATTTCTTGCAGAATCACCACACGAGACCATCCCGGCAGTCATGGTTTTGCTTTAGTTTTCCAAGTCCGTTTCAGTCCCTTCC
TTGGTCTGAAGAAATTCTGCAGTGGCGAGCAGTTTCCCACTTGCCAAGATCCCTTTT
(SEQ ID NO: 6486)

6487,AA486238,,20,388,AAAAGGGATCTTGGCAAGTG,,
6488,AA486238,,20,382,GATCTTGGCAAGTGGGAAAC,,
6489,AA486238,,20,376,GGCAAGTGGGAAACTGCTCG,,
6490,AA486238,,20,370,TGGGAAACTGCTCGCCACTG,,
6491,AA486238,,20,364,ACTGCTCGCCACTGCAGAAT,,
6492,AA486238,,20,358,CGCCACTGCAGAATTTCTTC,,
6493,AA486238,,20,352,TGCAGAATTTCTTCAGACCA,,
6494,AA486238,,20,346,ATTTCTTCAGACCAAGGAAG,,
6495,AA486238,,20,340,TCAGACCAAGGAAGGGACTG,,
6496,AA486238,,20,334,CAAGGAAGGGACTGAAACGG,,
6497,AA486238,,20,328,AGGGACTGAAACGGACTTGG,,
6498,AA486238,,20,322,TGAAACGGACTTGGAAAACT,,
6499,AA486238,,20,316,GGACTTGGAAAACTAAAGCA,,
6500,AA486238,,20,310,GGAAAACTAAAGCAAAACCA,,
6501,AA486238,,20,304,CTAAAGCAAAACCATGACTG,,
6502,AA486238,,20,298,CAAAACCATGACTGCCGGGA,,
6503,AA486238,,20,292,CATGACTGCCGGGATGGTCT,,
6504,AA486238,,20,286,TGCCGGGATGGTCTCGTGTG,,
6505,AA486238,,20,280,GATGGTCTCGTGTGGTGATT,,
6506,AA486238,,20,274,CTCGTGTGGTGATTCTGCAA,,
6507,AA486238,,20,268,TGGTGATTCTGCAAGAAATA,,
6508,AA486238,,20,262,TTCTGCAAGAAATAATCACC,,
6509,AA486238,,20,256,AAGAAATAATCACCAGAGCG,,
6510,AA486238,,20,250,TAATCACCAGAGCGAGGGGA,,
6511,AA486238,,20,244,CCAGAGCGAGGGGACAGGTA,,
6512,AA486238,,20,238,CGAGGGGACAGGTACTTGAG,,
6513,AA486238,,20,232,GACAGGTACTTGAGAGACAT,,
6514,AA486238,,20,226,TACTTGAGAGACATGTGGGC,,
6515,AA486238,,20,220,AGAGACATGTGGGCCTGGCT,,
6516,AA486238,,20,214,ATGTGGGCCTGGCTGCCACT,,
6517,AA486238,,20,208,GCCTGGCTGCCACTCTGCCC,,
6518,AA486238,,20,202,CTGCCACTCTGCCCTCTGAG,,
6519,AA486238,,20,196,CTCTGCCCTCTGAGTTTCTG,,
6520,AA486238,,20,190,CCTCTGAGTTTCTGTAGGGT,,
6521,AA486238,,20,184,AGTTTCTGTAGGGTGCCCGG,,
6522,AA486238,,20,178,TGTAGGGTGCCCGGCTGCCA,,
6523,AA486238,,20,172,GTGCCCGGCTGCCACTCTGC,,
6524,AA486238,,20,166,GGCTGCCACTCTGCCCTCTG,,
6525,AA486238,,20,160,CACTCTGCCCTCTGAGAAGT,,
6526,AA486238,,20,154,GCCCTCTGAGAAGTGTAAGA,,
6527,AA486238,,20,148,TGAGAAGTGTAAGAAGGCCA,,
6528,AA486238,,20,142,GTGTAAGAAGGCCACAGAGC,,
6529,AA486238,,20,136,GAAGGCCACAGAGCATGGGG,,
6530,AA486238,,20,130,CACAGAGCATGGGGGTGTTG,,
6531,AA486238,,20,124,GCATGGGGGTGTTGGCGATG,,
6532,AA486238,,20,118,GGGTGTTGGCGATGAGGAGC,,
6533,AA486238,,20,112,TGGCGATGAGGAGCGGTAAA,,
6534,AA486238,,20,106,TGAGGAGCGGTAAAGCAGTG,,
6535,AA486238,,20,100,GCGGTAAAGCAGTGCTAGTG,,
6536,AA486238,,20,94,AAGCAGTGCTAGTGATCTAA,,
6537,AA486238,,20,88,TGCTAGTGATCTAATAGCCA,,
6538,AA486238,,20,82,TGATCTAATAGCCAAATACA,,
6539,AA486238,,20,76,AATAGCCAAATACATTAACA,,
6540,AA486238,,20,70,CAAATACATTAACACGGACA,,
6541,AA486238,,20,64,CATTAACACGGACACTGGAA,,
6542,AA486238,,20,58,CACGGACACTGGAAGAGATT,,
6543,AA486238,,20,52,CACTGGAAGAGATTAAGCGG,,
6544,AA486238,,20,46,AAGAGATTAAGCGGATTTTA,,
6545,AA486238,,20,40,TTAAGCGGATTTTAAGTCAT,,
6546,AA486238,,20,34,GGATTTTAAGTCATCTCCTT,,
6547,AA486238,,20,28,TAAGTCATCTCCTTTGCCAA,,
6548,AA486238,,20,22,ATCTCCTTTGCCAAATGACA,,
6549,AA486238,,20,16,TTTGCCAAATGACAACCAAA,,
6550,AA486238,,20,10,AAATGACAACCAAACTAGGT,,
6551,AA486238,,20,4,CAACCAAACTAGGTGTCCCC,,
(GENBANK ACCESSION NO. AA504461)
CCTGCCCCTCTCTGTCCCCGGCATTCATTGACACGGGCTTTCCCTGGCCTGTGATCCCATCCCAACACACACGACAGAAAACAGTGC
AAAATAATAACACAAATGCCAAATGTACACAGTGTACAACTCTGAACTGAGAAAGTGCAAGGAGACCACGGGAATGGAAGTGGGT
AGGGGTCGGGAGGATGGGCACCAGGCTGGTGTCCTGACAGCCACACCTGGGTGCAGGCCACGTGTCCTCACGGCCAAGGTAACCG

GGTGTCTCAGGCACTTAATAAATATTAAGGGTGACCGGTGACTCAGGCTCTGCCTCTGGGAAGTGGCATCATTTGGTGAATGAGTTT
GGTCTCGGTGCCACC
(SEQ ID NO: 6552)

6553,AA504461,,20,340,GGTGGCACCGAGACCAAACT,,
6554,AA504461,,20,334,ACCGAGACCAAACTCATTCA,,
6555,AA504461,,20,328,ACCAAACTCATTCACCAAAT,,
6556,AA504461,,20,322,CTCATTCACCAAATGATGCC,,
6557,AA504461,,20,316,CACCAAATGATGCCACTTCC,,
6558,AA504461,,20,310,ATGATGCCACTTCCCAGAGG,,
6559,AA504461,,20,304,CCACTTCCCAGAGGCAGAGC,,
6560,AA504461,,20,298,CCCAGAGGCAGAGCCTGAGT,,
6561,AA504461,,20,292,GGCAGAGCCTGAGTCACCGG,,
6562,AA504461,,20,286,GCCTGAGTCACCGGTCACCC,,
6563,AA504461,,20,280,GTCACCGGTCACCCTTAATA,,
6564,AA504461,,20,274,GGTCACCCTTAATATTTATT,,
6565,AA504461,,20,268,CCTTAATATTTATTAAGTGC,,
6566,AA504461,,20,262,TATTTATTAAGTGCCTGAGA,,
6567,AA504461,,20,256,TTAAGTGCCTGAGACACCCG,,
6568,AA504461,,20,250,GCCTGAGACACCCGGTTACC,,
6569,AA504461,,20,244,GACACCCGGTTACCTTGGCC,,
6570,AA504461,,20,238,CGGTTACCTTGGCCGTGAGG,,
6571,AA504461,,20,232,CCTTGGCCGTGAGGACACGT,,
6572,AA504461,,20,226,CCGTGAGGACACGTGGCCTG,,
6573,AA504461,,20,220,GGACACGTGGCCTGCACCCA,,
6574,AA504461,,20,214,GTGGCCTGCACCCAGGTGTG,,
6575,AA504461,,20,208,TGCACCCAGGTGTGGCTGTC,,
6576,AA504461,,20,202,CAGGTGTGGCTGTCAGGACA,,
6577,AA504461,,20,196,TGGCTGTCAGGACACCAGCC,,
6578,AA504461,,20,190,TCAGGACACCAGCCTGGTGC,,
6579,AA504461,,20,184,CACCAGCCTGGTGCCCATCC,,
6580,AA504461,,20,178,CCTGGTGCCCATCCTCCCGA,,
6581,AA504461,,20,172,GCCCATCCTCCCGACCCCTA,,
6582,AA504461,,20,166,CCTCCCGACCCCTACCCACT,,
6583,AA504461,,20,160,GACCCCTACCCACTTCCATT,,
6584,AA504461,,20,154,TACCCACTTCCATTCCCGTG,,
6585,AA504461,,20,148,CTTCCATTCCCGTGGTCTCC,,
6586,AA504461,,20,142,TTCCCGTGGTCTCCTTGCAC,,
6587,AA504461,,20,136,TGGTCTCCTTGCACTTTCTC,,
6588,AA504461,,20,130,CCTTGCACTTTCTCAGTTCA,,
6589,AA504461,,20,124,ACTTTCTCAGTTCAGAGTTG,,
6590,AA504461,,20,118,TCAGTTCAGAGTTGTACACT,,
6591,AA504461,,20,112,CAGAGTTGTACACTGTGTAC,,
6592,AA504461,,20,106,TGTACACTGTGTACATTTGG,,
6593,AA504461,,20,100,CTGTGTACATTTGGCATTTG,,
6594,AA504461,,20,94,ACATTTGGCATTTGTGTTAT,,
6595,AA504461,,20,88,GGCATTTGTGTTATTATTTT,,
6596,AA504461,,20,82,TGTGTTATTATTTTGCACTG,,
6597,AA504461,,20,76,ATTATTTTGCACTGTTTTCT,,
6598,AA504461,,20,70,TTGCACTGTTTTCTGTCGTG,,
6599,AA504461,,20,64,TGTTTTCTGTCGTGTGTGTT,,
6600,AA504461,,20,58,CTGTCGTGTGTGTTGGGATG,,
6601,AA504461,,20,52,TGTGTGTTGGGATGGGATCA,,
6602,AA504461,,20,46,TTGGGATGGGATCACAGGCC,,
6603,AA504461,,20,40,TGGGATCACAGGCCAGGGAA,,
6604,AA504461,,20,34,CACAGGCCAGGGAAAGCCCG,,
6605,AA504461,,20,28,CCAGGGAAAGCCCGTGTCAA,,
6606,AA504461,,20,22,AAAGCCCGTGTCAATGAATG,,
6607,AA504461,,20,16,CGTGTCAATGAATGCCGGGG,,
6608,AA504461,,20,10,AATGAATGCCGGGGACAGAG,,
6609,AA504461,,20,4,TGCCGGGGACAGAGAGGGGC,,
(GENBANK ACCESSION NO. AA448400)
TTTAAGGTTGGAATTGCTTTTATTGGGGGCGGATACCGCAAGCCCCGCCCACGGTCAGGTTAGTGTTCTGCCCTTGCAGAGGCGCCA
GAGCCTGACACCTCCACCTGCCACCCGCCCGGGGTGTAGTGGAACATGCAAAGCTCCGACGGTGGAGGCAGGGGTGGTCGCTGCTG
AGACCAGGGCTGGGTGCAACAGGAGGGTCAGCACAGAGCCTGGCTGGTGTCCCTGGGCCCAAAGGGGCTGGGGCTCCATGGGAGA
GAGACGGGCAGGCGGCACCCCAGTGTGGGGCTCCACAAGCTGGAGGGGCCCCTGGACCTACCAGGAGGACAGGTCTGCAGTTCCC
AGCCATGCCGGCTGGAACGTCCGCCTCCCCACTGGGTCTGGGTCCTCGGGGCCTGGGGTTAGAGGCCGACATGGAAGGACTTACTA
GGGGAACAGAGGCTGGAGGCTGACGCC
(SEQ ID NO: 6610)

6611,AA448400,,20,437,GGCGTCAGCCTCCAGCCTCT,,
6612,AA448400,,20,431,AGCCTCCAGCCTCTGTTCCC,,
6613,AA448400,,20,425,CAGCCTCTGTTCCCCTAGTA,,
6614,AA448400,,20,419,CTGTTCCCCTAGTAAGTCCT,,
6615,AA448400,,20,413,CCCTAGTAAGTCCTTCCATG,,

6616,AA448400,,20,407,TAAGTCCTTCCATGTCGGCC,,
6617,AA448400,,20,401,CTTCCATGTCGGCCTCTAAC,,
6618,AA448400,,20,395,TGTCGGCCTCTAACCCCAGG,,
6619,AA448400,,20,389,CCTCTAACCCCAGGCCCCGA,,
6620,AA448400,,20,383,ACCCCAGGCCCCGAGGACCC,,
6621,AA448400,,20,377,GGCCCCGAGGACCCAGACCC,,
6622,AA448400,,20,371,GAGGACCCAGACCCAGTGGG,,
6623,AA448400,,20,365,CCAGACCCAGTGGGGAGGCG,,
6624,AA448400,,20,359,CCAGTGGGGAGGCGGACGTT,,
6625,AA448400,,20,353,GGGAGGCGGACGTTCCAGCC,,
6626,AA448400,,20,347,CGGACGTTCCAGCCGGCATG,,
6627,AA448400,,20,341,TTCCAGCCGGCATGGCTGGG,,
6628,AA448400,,20,335,CCGGCATGGCTGGGAACTGC,,
6629,AA448400,,20,329,TGGCTGGGAACTGCAGACCT,,
6630,AA448400,,20,323,GGAACTGCAGACCTGTCCTC,,
6631,AA448400,,20,317,GCAGACCTGTCCTCCTGGTA,,
6632,AA448400,,20,311,CTGTCCTCCTGGTAGGTCCA,,
6633,AA448400,,20,305,TCCTGGTAGGTCCAGGGGCC,,
6634,AA448400,,20,299,TAGGTCCAGGGGCCCCTCCA,,
6635,AA448400,,20,293,CAGGGGCCCCTCCAGCTTGT,,
6636,AA448400,,20,287,CCCCTCCAGCTTGTGGAGCC,,
6637,AA448400,,20,281,CAGCTTGTGGAGCCCCACAC,,
6638,AA448400,,20,275,GTGGAGCCCCACACTGGGGT,,
6639,AA448400,,20,269,CCCCACACTGGGGTGCCGCC,,
6640,AA448400,,20,263,ACTGGGGTGCCGCCTGCCCG,,
6641,AA448400,,20,257,GTGCCGCCTGCCCGTCTCTC,,
6642,AA448400,,20,251,CCTGCCCGTCTCTCTCCCAT,,
6643,AA448400,,20,245,CGTCTCTCTCCCATGGAGCC,,
6644,AA448400,,20,239,TCTCCCATGGAGCCCCAGCC,,
6645,AA448400,,20,233,ATGGAGCCCCAGCCCCTTTG,,
6646,AA448400,,20,227,CCCCAGCCCCTTTGGGCCCA,,
6647,AA448400,,20,221,CCCCTTTGGGCCCAGGGACA,,
6648,AA448400,,20,215,TGGGCCCAGGGACACCAGCC,,
6649,AA448400,,20,209,CAGGGACACCAGCCAGGCTC,,
6650,AA448400,,20,203,CACCAGCCAGGCTCTGTGCT,,
6651,AA448400,,20,197,CCAGGCTCTGTGCTGACCCT,,
6652,AA448400,,20,191,TCTGTGCTGACCCTCCTGTT,,
6653,AA448400,,20,185,CTGACCCTCCTGTTGCACCC,,
6654,AA448400,,20,179,CTCCTGTTGCACCCAGCCCT,,
6655,AA448400,,20,173,TTGCACCCAGCCCTGGTCTC,,
6656,AA448400,,20,167,CCAGCCCTGGTCTCAGCAGC,,
6657,AA448400,,20,161,CTGGTCTCAGCAGCGACCAC,,
6658,AA448400,,20,155,TCAGCAGCGACCACCCCTGC,,
6659,AA448400,,20,149,GCGACCACCCCTGCCTCCAC,,
6660,AA448400,,20,143,ACCCCTGCCTCCACCGTCGG,,
6661,AA448400,,20,137,GCCTCCACCGTCGGAGCTTT,,
6662,AA448400,,20,131,ACCGTCGGAGCTTTGCATGT,,
6663,AA448400,,20,125,GGAGCTTTGCATGTTCCACT,,
6664,AA448400,,20,119,TTGCATGTTCCACTACACCC,,
6665,AA448400,,20,113,GTTCCACTACACCCCGGGCG,,
6666,AA448400,,20,107,CTACACCCCGGGCGGGTGGC,,
6667,AA448400,,20,101,CCCGGGCGGGTGGCAGGTGG,,
6668,AA448400,,20,95,CGGGTGGCAGGTGGAGGTGT,,
6669,AA448400,,20,89,GCAGGTGGAGGTGTCAGGCT,,
6670,AA448400,,20,83,GGAGGTGTCAGGCTCTGGCG,,
6671,AA448400,,20,77,GTCAGGCTCTGGCGCCTCTG,,
6672,AA448400,,20,71,CTCTGGCGCCTCTGCAAGGG,,
6673,AA448400,,20,65,CGCCTCTGCAAGGGCAGAAC,,
6674,AA448400,,20,59,TGCAAGGGCAGAACACTAAC,,
6675,AA448400,,20,53,GGCAGAACACTAACCTGACC,,
6676,AA448400,,20,47,ACACTAACCTGACCGTGGGC,,
6677,AA448400,,20,41,ACCTGACCGTGGGCGGGGCT,,
6678,AA448400,,20,35,CCGTGGGCGGGGCTTGCGGT,,
6679,AA448400,,20,29,GCGGGGCTTGCGGTATCCGC,,
6680,AA448400,,20,23,CTTGCGGTATCCGCCCCCAA,,
6681,AA448400,,20,17,GTATCCGCCCCCAATAAAAG,,
6682,AA448400,,20,11,GCCCCCAATAAAAGCAATTC,,
6683,AA448400,,20,5,AATAAAAGCAATTCCAACCT,,
(GENBANK ACCESSION NO. AA480815)
CGGCTCACCATGTGTCACTCTCGCAGCTGCCACCCGACCATGACCATCCTGCAGGCCCCGACCCCGGCCCCCTCCACCATCCCGGGA
CCCCGCGTGCTCCGGTCGCTGAGATCTTCACCTTCGACCCTCTCCCGGAGCCCGCAGCGCCCCTGCGGGCGCCCCAGCGTCNTCGCG
GGCACCGAAAGCGCAGCGCAGGGTTCTCTACCCTCGAGTGGTCCGGCGCCAGTGCCTAGTCGAGGAACCGAACCCAGCCAAAAGG
CTTCTCTTTCTGCTGCTCACCATCGTCTTCTGCCAGATCCTGATGGCTGAAGAGGGTGTGCCGGC
(SEQ ID NO: 6684)

6685,AA480815,,20,305,GCCGGCACACCCTCTTCAGC,,
6686,AA480815,,20,299,ACACCCTCTTCAGCCATCAG,,
6687,AA480815,,20,293,TCTTCAGCCATCAGGATCTG,,
6688,AA480815,,20,287,GCCATCAGGATCTGGCAGAA,,
6689,AA480815,,20,281,AGGATCTGGCAGAAGACGAT,,
6690,AA480815,,20,275,TGGCAGAAGACGATGGTGAG,,
6691,AA480815,,20,269,AAGACGATGGTGAGCAGCAG,,
6692,AA480815,,20,263,ATGGTGAGCAGCAGAAAGAG,,
6693,AA480815,,20,257,AGCAGCAGAAAGAGAAGCCT,,
6694,AA480815,,20,251,AGAAAGAGAAGCCTTTTGGC,,
6695,AA480815,,20,245,AGAAGCCTTTTGGCTGGGTT,,
6696,AA480815,,20,239,CTTTTGGCTGGGTTCGGTTC,,
6697,AA480815,,20,233,GCTGGGTTCGGTTCCTCGAC,,
6698,AA480815,,20,227,TTCGGTTCCTCGACTAGGCA,,
6699,AA480815,,20,221,TCCTCGACTAGGCACTGGCG,,
6700,AA480815,,20,215,ACTAGGCACTGGCGCCGGAC,,
6701,AA480815,,20,209,CACTGGCGCCGGACCACTCG,,
6702,AA480815,,20,203,CGCCGGACCACTCGAGGGTA,,
6703,AA480815,,20,197,ACCACTCGAGGGTAGAGAAC,,
6704,AA480815,,20,191,CGAGGGTAGAGAACCCTGCG,,
6705,AA480815,,20,185,TAGAGAACCCTGCGCTGCGC,,
6706,AA480815,,20,179,ACCCTGCGCTGCGCTTTCGG,,
6707,AA480815,,20,173,CGCTGCGCTTTCGGTGCCCG,,
6708,AA480815,,20,167,GCTTTCGGTGCCCGCGANGA,,
6709,AA480815,,20,161,GGTGCCCGCGANGACGCTGG,,
6710,AA480815,,20,155,CGCGANGACGCTGGGGCGCC,,
6711,AA480815,,20,149,GACGCTGGGGCGCCCGCAGG,,
6712,AA480815,,20,143,GGGGCGCCCGCAGGGGCGCT,,
6713,AA480815,,20,137,CCCGCAGGGGCGCTGCGGGC,,
6714,AA480815,,20,131,GGGGCGCTGCGGGCTCCGGG,,
6715,AA480815,,20,125,CTGCGGGCTCCGGGAGAGGG,,
6716,AA480815,,20,119,GCTCCGGGAGAGGGTCGAAG,,
6717,AA480815,,20,113,GGAGAGGGTCGAAGGTGAAG,,
6718,AA480815,,20,107,GGTCGAAGGTGAAGATCTCA,,
6719,AA480815,,20,101,AGGTGAAGATCTCAGCGACC,,
6720,AA480815,,20,95,AGATCTCAGCGACCGGAGCA,,
6721,AA480815,,20,89,CAGCGACCGGAGCACGCGGG,,
6722,AA480815,,20,83,CCGGAGCACGCGGGGTCCCG,,
6723,AA480815,,20,77,CACGCGGGGTCCCGGGATGG,,
6724,AA480815,,20,71,GGGTCCCGGGATGGTGGAGG,,
6725,AA480815,,20,65,CGGGATGGTGGAGGGGGCCG,,
6726,AA480815,,20,59,GGTGGAGGGGGCCGGGGTCG,,
6727,AA480815,,20,53,GGGGGCCGGGGTCGGGGCCT,,
6728,AA480815,,20,47,CGGGGTCGGGGCCTGCAGGA,,
6729,AA480815,,20,41,CGGGGCCTGCAGGATGGTCA,,
6730,AA480815,,20,35,CTGCAGGATGGTCATGGTCG,,
6731,AA480815,,20,29,GATGGTCATGGTCGGGTGGC,,
6732,AA480815,,20,23,CATGGTCGGGTGGCAGCTGC,,
6733,AA480815,,20,17,CGGGTGGCAGCTGCGAGAGT,,
6734,AA480815,,20,11,GCAGCTGCGAGAGTGACACA,,
6735,AA480815,,20,5,GCGAGAGTGACACATGGTGA,,

(GENBANK ACCESSION NO. AA102454)

TGTGATTGCATGGGGTAACCNTTTATTTTTATTTAACAGTACATTTGGAAGAAGATAAGGCAACAAGGCAAAATTTCTGTAATGTTG
CTAGCATTTTCCCAAGGTAAAGCCAGGAAACAAACTTGTGTCCTTTCTATAAGAACTTCTAAGTGATGTCCCCTCTAACTCCATGGA
CAGACACTAGTGGTGGTGAAGTTCATAAAAGTTTTTGAGGTGGCAAACAGCTTATTTTGTCCTTTATCATAATTGGTTTACAAATTGG
ATGCCTGGTTTTGGCATACTGGTTCAGTTGATCAAGCGCAGGATCCCTTTTGGTCTTTGTAAGACCANGATGGTATAAGGCCGAATA
GGGGTCAAGAACTTGATTGTAAGGAGAACGATTTACTATTTACCCAATCAATATTCTACAAAACCTGTCTCTTGGTTNAACCCAAGC
GACAGAGGTGAGTCTTCTCTCCTGGACTCTCCAGATGCCTTGACAAGANTACTTCATGATATACCATGTTTCCCAGTTGGGCTCATG
GGAAATGGGTAATCTTGGGACTGGTTGTTTGGGTAGAANAACAGCTGGCATTTTTAACCTGGAAG

(SEQ ID NO: 6736)

6737,AA102454,,20,569,CTTCCAGGTTAAAAATGCCA,,
6738,AA102454,,20,563,GGTTAAAAATGCCAGCTGTT,,
6739,AA102454,,20,557,AAATGCCAGCTGTTNTTCTA,,
6740,AA102454,,20,551,CAGCTGTTNTTCTACCCAAA,,
6741,AA102454,,20,545,TTNTTCTACCCAAACAACCA,,
6742,AA102454,,20,539,TACCCAAACAACCAGTCCCA,,
6743,AA102454,,20,533,AACAACCAGTCCCAAGATTA,,
6744,AA102454,,20,527,CAGTCCCAAGATTACCCATT,,
6745,AA102454,,20,521,CAAGATTACCCATTTCCCAT,,
6746,AA102454,,20,515,TACCCATTTCCCATGAGCCC,,
6747,AA102454,,20,509,TTTCCCATGAGCCCAACTGG,,
6748,AA102454,,20,503,ATGAGCCCAACTGGGAAACA,,
6749,AA102454,,20,497,CCAACTGGGAAACATGGTAT,,
6750,AA102454,,20,491,GGGAAACATGGTATATCATG,,

6751,AA102454,,20,485,CATGGTATATCATGAAGTAN,,
6752,AA102454,,20,479,ATATCATGAAGTANTCTTGT,,
6753,AA102454,,20,473,TGAAGTANTCTTGTCAAGGC,,
6754,AA102454,,20,467,ANTCTTGTCAAGGCATCTGG,,
6755,AA102454,,20,461,GTCAAGGCATCTGGAGAGTC,,
6756,AA102454,,20,455,GCATCTGGAGAGTCCAGGAG,,
6757,AA102454,,20,449,GGAGAGTCCAGGAGAGAAGA,,
6758,AA102454,,20,443,TCCAGGAGAGAAGACTCACC,,
6759,AA102454,,20,437,AGAGAAGACTCACCTCTGTC,,
6760,AA102454,,20,431,GACTCACCTCTGTCGCTTGG,,
6761,AA102454,,20,425,CCTCTGTCGCTTGGGTTNAA,,
6762,AA102454,,20,419,TCGCTTGGGTTNAACCAAGA,,
6763,AA102454,,20,413,GGGTTNAACCAAGAGACAGG,,
6764,AA102454,,20,407,AACCAAGAGACAGGTTTTGT,,
6765,AA102454,,20,401,GAGACAGGTTTTGTAGAATA,,
6766,AA102454,,20,395,GGTTTTGTAGAATATTGATT,,
6767,AA102454,,20,389,GTAGAATATTGATTGGGTAA,,
6768,AA102454,,20,383,TATTGATTGGGTAAATAGTA,,
6769,AA102454,,20,377,TTGGGTAAATAGTAAATCGT,,
6770,AA102454,,20,371,AAATAGTAAATCGTTCTCCT,,
6771,AA102454,,20,365,TAAATCGTTCTCCTTACAAT,,
6772,AA102454,,20,359,GTTCTCCTTACAATCAAGTT,,
6773,AA102454,,20,353,CTTACAATCAAGTTCTTGAC,,
6774,AA102454,,20,347,ATCAAGTTCTTGACCCCTAT,,
6775,AA102454,,20,341,TTCTTGACCCCTATTCGGCC,,
6776,AA102454,,20,335,ACCCCTATTCGGCCTTATAC,,
6777,AA102454,,20,329,ATTCGGCCTTATACCATCNT,,
6778,AA102454,,20,323,CCTTATACCATCNTGGTCTT,,
6779,AA102454,,20,317,ACCATCNTGGTCTTACAAAG,,
6780,AA102454,,20,311,NTGGTCTTACAAAGACCAAA,,
6781,AA102454,,20,305,TTACAAAGACCAAAAGGGAT,,
6782,AA102454,,20,299,AGACCAAAAGGGATCCTGCG,,
6783,AA102454,,20,293,AAAGGGATCCTGCGCTTGAT,,
6784,AA102454,,20,287,ATCCTGCGCTTGATCAACTG,,
6785,AA102454,,20,281,CGCTTGATCAACTGAACCAG,,
6786,AA102454,,20,275,ATCAACTGAACCAGTATGCC,,
6787,AA102454,,20,269,TGAACCAGTATGCCAAAACC,,
6788,AA102454,,20,263,AGTATGCCAAAACCAGGCAT,,
6789,AA102454,,20,257,CCAAAACCAGGCATCCAATT,,
6790,AA102454,,20,251,CCAGGCATCCAATTTGTAAA,,
6791,AA102454,,20,245,ATCCAATTTGTAAACCAATT,,
6792,AA102454,,20,239,TTTGTAAACCAATTATGATA,,
6793,AA102454,,20,233,AACCAATTATGATAAAGGAC,,
6794,AA102454,,20,227,TTATGATAAAGGACAAAATA,,
6795,AA102454,,20,221,TAAAGGACAAAATAAGCTGT,,
6796,AA102454,,20,215,ACAAAATAAGCTGTTTGCCA,,
6797,AA102454,,20,209,TAAGCTGTTTGCCACCTCAA,,
6798,AA102454,,20,203,GTTTGCCACCTCAAAAACTT,,
6799,AA102454,,20,197,CACCTCAAAAACTTTTATGA,,
6800,AA102454,,20,191,AAAAACTTTTATGAACTTCA,,
6801,AA102454,,20,185,TTTTATGAACTTCACCACCA,,
6802,AA102454,,20,179,GAACTTCACCACCACTAGTG,,
6803,AA102454,,20,173,CACCACCACTAGTGTCTGTC,,
6804,AA102454,,20,167,CACTAGTGTCTGTCCATGGA,,
6805,AA102454,,20,161,TGTCTGTCCATGGAGTTAGA,,
6806,AA102454,,20,155,TCCATGGAGTTAGAGGGGAC,,
6807,AA102454,,20,149,GAGTTAGAGGGGACATCACT,,
6808,AA102454,,20,143,GAGGGGACATCACTTAGAAG,,
6809,AA102454,,20,137,ACATCACTTAGAAGTTCTTA,,
6810,AA102454,,20,131,CTTAGAAGTTCTTATAGAAA,,
6811,AA102454,,20,125,AGTTCTTATAGAAAGGACAC,,
6812,AA102454,,20,119,TATAGAAAGGACACAAGTTT,,
6813,AA102454,,20,113,AAGGACACAAGTTTGTTTCC,,
6814,AA102454,,20,107,ACAAGTTTGTTTCCTGGCTT,,
6815,AA102454,,20,101,TTGTTTCCTGGCTTTACCTT,,
6816,AA102454,,20,95,CCTGGCTTTACCTTGGGAAA,,
6817,AA102454,,20,89,TTTACCTTGGGAAAATGCTA,,
6818,AA102454,,20,83,TTGGGAAAATGCTAGCAACA,,
6819,AA102454,,20,77,AAATGCTAGCAACATTACAG,,
6820,AA102454,,20,71,TAGCAACATTACAGAAATTT,,
6821,AA102454,,20,65,CATTACAGAAATTTTGCCTT,,
6822,AA102454,,20,59,AGAAATTTTGCCTTGTTGCC,,
6823,AA102454,,20,53,TTTGCCTTGTTGCCTTATCT,,
6824,AA102454,,20,47,TTGTTGCCTTATCTTCTTCC,,
6825,AA102454,,20,41,CCTTATCTTCTTCCAAATGT,,

6826,AA102454,,20,35,CTTCTTCCAAATGTACTGTT,,
6827,AA102454,,20,29,CCAAATGTACTGTTAAATAA,,
6828,AA102454,,20,23,GTACTGTTAAATAAAAATAA,,
6829,AA102454,,20,17,TTAAATAAAAATAAANGGTT,,
6830,AA102454,,20,11,AAAAATAAANGGTTACCCCA,,
6831,AA102454,,20,5,AAANGGTTACCCCATGCAAT,,
(GENBANK ACCESSION NO. AA258396)
TTTTTTTTTTTTTTTAAAAGTAATATCAGAGTTTTAATTTCAACCAGCTGGCACAACAATGAAAGTGTCAGACTTTCTGAAAGTACTC
GAGAAATAATGAATAAATTCTTAATGTTTTCCCCTCCACCGCCCTTTTTTATTCTCCAAGATTAGGAATTACTACGGATTAGGTTTTT
GAAAATAAAGTTTCCTTTTTGGAAAATGGTCTACATTCAGAAATGTCTTAGAACAAGCATTTAAAAAAAAACTAATAAATAATCATA
AATCAAAATACATTAAAATAAAATTACAGTACATCATCGCTCCTAGAAAATTCACCATACAAGACGATCCTTTCAAAGGTTCATAAA
TAAAAGTCTTCTTGACTCGAAATCGTTTCCTGCATCGTGATGAAAAGTATGCAGAAAACTAAGAAGAATCGC
(SEQ ID NO: 6832)

6833,AA258396,,20,403,GCGATTCTTCTTAGTTTTCT,,
6834,AA258396,,20,397,CTTCTTAGTTTTCTGCATAC,,
6835,AA258396,,20,391,AGTTTTCTGCATACTTTTCA,,
6836,AA258396,,20,385,CTGCATACTTTTCATCACGA,,
6837,AA258396,,20,379,ACTTTTCATCACGATGCAGG,,
6838,AA258396,,20,373,CATCACGATGCAGGAAACGA,,
6839,AA258396,,20,367,GATGCAGGAAACGATTTCGA,,
6840,AA258396,,20,361,GGAAACGATTTCGAGTCAAG,,
6841,AA258396,,20,355,GATTTCGAGTCAAGAAGACT,,
6842,AA258396,,20,349,GAGTCAAGAAGACTTTTATT,,
6843,AA258396,,20,343,AGAAGACTTTTATTTATGAA,,
6844,AA258396,,20,337,CTTTTATTTATGAACCTTTG,,
6845,AA258396,,20,331,TTTATGAACCTTTGAAAGGA,,
6846,AA258396,,20,325,AACCTTTGAAAGGATCGTCT,,
6847,AA258396,,20,319,TGAAAGGATCGTCTTGTATG,,
6848,AA258396,,20,313,GATCGTCTTGTATGGTGAAT,,
6849,AA258396,,20,307,CTTGTATGGTGAATTTTCTA,,
6850,AA258396,,20,301,TGGTGAATTTTCTAGGAGCG,,
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6856,AA258396,,20,265,TTATTTTAATGTATTTTGAT,,
6857,AA258396,,20,259,TAATGTATTTTGATTTATGA,,
6858,AA258396,,20,253,ATTTTGATTTATGATTATTT,,
6859,AA258396,,20,247,ATTTATGATTATTTATTAGT,,
6860,AA258396,,20,241,GATTATTTATTAGTTTTTTT,,
6861,AA258396,,20,235,TTATTAGTTTTTTTTTAAAT,,
6862,AA258396,,20,229,GTTTTTTTTTAAATGCTTGT,,
6863,AA258396,,20,223,TTTTAAATGCTTGTTCTAAG,,
6864,AA258396,,20,217,ATGCTTGTTCTAAGACATTT,,
6865,AA258396,,20,211,GTTCTAAGACATTTCTGAAT,,
6866,AA258396,,20,205,AGACATTTCTGAATGTAGAC,,
6867,AA258396,,20,199,TTCTGAATGTAGACCATTTT,,
6868,AA258396,,20,193,ATGTAGACCATTTTCCAAAA,,
6869,AA258396,,20,187,ACCATTTTCCAAAAAGGAAA,,
6870,AA258396,,20,181,TTCCAAAAAGGAAACTTTAT,,
6871,AA258396,,20,175,AAAGGAAACTTTATTTTCAA,,
6872,AA258396,,20,169,AACTTTATTTTCAAAAACCT,,
6873,AA258396,,20,163,ATTTTCAAAAACCTAATCCG,,
6874,AA258396,,20,157,AAAAACCTAATCCGTAGTAA,,
6875,AA258396,,20,151,CTAATCCGTAGTAATTCCTA,,
6876,AA258396,,20,145,CGTAGTAATTCCTAATCTTG,,
6877,AA258396,,20,139,AATTCCTAATCTTGGAGAAT,,
6878,AA258396,,20,133,TAATCTTGGAGAATAAAAAA,,
6879,AA258396,,20,127,TGGAGAATAAAAAAGGGCGG,,
6880,AA258396,,20,121,ATAAAAAAGGGCGGTGGAGG,,
6881,AA258396,,20,115,AAGGGCGGTGGAGGGGAAAA,,
6882,AA258396,,20,109,GGTGGAGGGGAAAACATTAA,,
6883,AA258396,,20,103,GGGGAAAACATTAAGAATTT,,
6884,AA258396,,20,97,AACATTAAGAATTTATTCAT,,
6885,AA258396,,20,91,AAGAATTTATTCATTATTTC,,
6886,AA258396,,20,85,TTATTCATTATTTCTCGAGT,,
6887,AA258396,,20,79,ATTATTTCTCGAGTACTTTC,,
6888,AA258396,,20,73,TCTCGAGTACTTTCAGAAAG,,
6889,AA258396,,20,67,GTACTTTCAGAAAGTCTGAC,,
6890,AA258396,,20,61,TCAGAAAGTCTGACACTTTC,,
6891,AA258396,,20,55,AGTCTGACACTTTCATTGTT,,
6892,AA258396,,20,49,ACACTTTCATTGTTGTGCCA,,
6893,AA258396,,20,43,TCATTGTTGTGCCAGCTGGT,,

6894,AA258396,,20,37,TTGTGCCAGCTGGTTGAAAT,,
6895,AA258396,,20,31,CAGCTGGTTGAAATTAAAAC,,
6896,AA258396,,20,25,GTTGAAATTAAAACTCTGAT,,
6897,AA258396,,20,19,ATTAAAACTCTGATATTACT,,
6898,AA258396,,20,13,ACTCTGATATTACTTTTAAA,,
6899,AA258396,,20,7,ATATTACTTTTAAAAAAAAA,,
6900,AA258396,,20,1,CTTTTAAAAAAAAAAAAAAA,,
(GENBANK ACCESSION NO. AA497002)
TCTGGGACAATTAAGCTTTATTTTTCATATATATATATATTTTCATATATATATATACATACATATATAAAGGAAACAATTTGCAAAT
TTACACACCTGACAAAACCATATATACACACATATGTATGCATACACACAGACAGACACACACACCCGAAGCTCTAGCCAGGCCCG
TTTTCCATCCCTAAGTACCATTCTCTCATTTGGGCCCTTCTAGGGTTGGGGCCCTGAGCTTGGTTTGTAGAAGTTTGGTGCTAATATA
ACCATAGCTTTAATCCCCATGAAGGACAGTGTAGACCTCATCTTTGTCTGCTCCCCGCTGCCTTTCAGTTTTACGTGATCCATCAAGA
GGGCTATGGGAGCCAGTGAACACGGCGGATTGAGGCTAATTCACCTGAACTCGAAAACAGTGCCCAGGGTGGGTGACGAAAGGGG
TCTTTTGAACTGTGGAAGGAACATCCAAGATCTCTGGTCCATGAAGATTGG
(SEQ ID NO: 6901)

6902,AA497002,,20,467,CCAATCTTCATGGACCAGAG,,
6903,AA497002,,20,461,TTCATGGACCAGAGATCTTG,,
6904,AA497002,,20,455,GACCAGAGATCTTGGATGTT,,
6905,AA497002,,20,449,AGATCTTGGATGTTCCTTCC,,
6906,AA497002,,20,443,TGGATGTTCCTTCCACAGTT,,
6907,AA497002,,20,437,TTCCTTCCACAGTTCAAAAG,,
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6976,AA497002,,20,23,AAATATATATATATATGAAA,,
6977,AA497002,,20,17,ATATATATATGAAAAATAAA,,
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(SEQ ID NO: 7160)

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7204,AA485272,,20,34,AACCAACAAACAATGCCATC,,
7205,AA485272,,20,28,CAAACAATGCCATCACTGGA,,
7206,AA485272,,20,22,ATGCCATCACTGGAATTTCC,,
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(SEQ ID NO: 7210)

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7218,R19956,,20,437,CGGGCCTCNGGTGAATTTAA,,
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7225,R19956,,20,395,NGGCGAAAACCCNAAATCCN,,
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7288,R19956,,20,17,GGCCTTGGTGAGGTTTGATC,,
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TTTTAGGAGGCACAACAGTTCTCTTCTAGGATTTGTTTGGCTGACTGGCAGTAACCTAGTGAATTTTTGAAAGATGAGTAATTTCTTT
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GGAAAGTCATCTGTNTAATTTACACACTTGCATGAATTACTGGATATAACTCCTTAACTCAGGGAGCTATGTCATTTAGTGCTAACA
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7297,AA463610,,20,599,TCTACTTTGTTAGCACTAAA,,
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7382,AA463610,,20,89,ATACTCTAAGCTCAGTTATT,,
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7384,AA463610,,20,77,CAGTTATTCAAGCATGTTTT,,
7385,AA463610,,20,71,TTCAAGCATGTTTTGATCAT,,
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7387,AA463610,,20,59,TTGATCATTAGAGCAAGATG,,
7388,AA463610,,20,53,ATTAGAGCAAGATGGGGTGT,,
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(GENBANK ACCESSION NO. R78585)
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(SEQ ID NO: 7397)

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7404,R78585,,20,407,GAGGTATGAGGGACCCCTGG,,
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7437,R78585,,20,209,TTTTTTTAATCTCAGGGTTT,,
7438,R78585,,20,203,TAATCTCAGGGTTTCTTAAG,,
7439,R78585,,20,197,CAGGGTTTCTTAAGAGAATT,,
7440,R78585,,20,191,TTCTTAAGAGAATTCCCATT,,
7441,R78585,,20,185,AGAGAATTCCCATTCAGTGA,,
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7446,R78585,,20,155,CGTTAAAGGCACTTTCAATG,,
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7468,R78585,,20,23,AATAATTAAGTCTTGAGCAT,,
7469,R78585,,20,17,TAAGTCTTGAGCATTTCAAC,,
7470,R78585,,20,11,TTGAGCATTTCAACAGATGC,,
7471,R78585,,20,5,ATTTCAACAGATGCACACCC,,
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(SEQ ID NO: 7472)

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7476,R33851,,20,302,AAATAAAGATCCTATANTTG,,
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7478,R33851,,20,290,TATANTTGGGGGAGGAATTG,,
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7481,R33851,,20,272,TGCCATANCCGTAAGACCGG,,
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7498,R33851,,20,170,TTCCAGGACAAAGTAAATGA,,
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7500,R33851,,20,158,GTAAATGAACTGAAGTTTCC,,
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7514,R33851,,20,74,CAGGCCTCAGACATTCACCC,,
7515,R33851,,20,68,TCAGACATTCACCCTACAGT,,
7516,R33851,,20,62,ATTCACCCTACAGTCAGATA,,
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7518,R33851,,20,50,GTCAGATACAACTTCAGTTC,,
7519,R33851,,20,44,TACAACTTCAGTTCCTTACT,,
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7521,R33851,,20,32,TCCTTACTTGGCTTCTGTCA,,
7522,R33851,,20,26,CTTGGCTTCTGTCAAGACGG,,
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7525,R33851,,20,8,GGTAAGAGTGCAAGGTGTCA,,
7526,R33851,,20,2,AGTGCAAGGTGTCATATAAT,,
(GENBANK ACCESSION NO. R14663)
GATTTCAGACTGCAGAGGGGAAAGACTTCCATCTAGTCACAAAGACTCCTTCGTCCCCAGTTGCCGTCTAGGATTGGGCCTCCCATA
ATTGCTTTGCCAAAATACCAGAGCCTTCAAGTGCCAAACAGAGTATGTCCGATGGTATCTGGGTAAGGAAGGAAAGCAAAAGCAAG
GGACCTTCATGCCCTTCTGATTCCCCTCCACCAAACCCCACTTCCCCTTCATAAGTTTGTTTAAACACTTATCTTCTGGGTTAGGAAT
GNCGGTTTAATTCCATATGCTCCAGGNTCTTTTGACTGGAAAAAAAAAAAAGGAAGGAGGAGGAG
(SEQ ID NO: 7527)

7528,R14663,,20,306,CTCCTCCTCCTTCCTTTTTT,,
7529,R14663,,20,300,CTCCTTCCTTTTTTTTTTTC,,
7530,R14663,,20,294,CCTTTTTTTTTTTTCCAGTCA,,
7531,R14663,,20,288,TTTTTTTCCAGTCAAAAGAN,,
7532,R14663,,20,282,TCCAGTCAAAAGANCCTGGA,,
7533,R14663,,20,276,CAAAAGANCCTGGAGCATAT,,
7534,R14663,,20,270,ANCCTGGAGCATATGGAATT,,
7535,R14663,,20,264,GAGCATATGGAATTAAACCG,,
7536,R14663,,20,258,ATGGAATTAAACCGNCATTC,,
7537,R14663,,20,252,TTAAACCGNCATTCCTAACC,,
7538,R14663,,20,246,CGNCATTCCTAACCCAGAAG,,
7539,R14663,,20,240,TCCTAACCCAGAAGATAAGT,,
7540,R14663,,20,234,CCCAGAAGATAAGTGTTTAA,,
7541,R14663,,20,228,AGATAAGTGTTTAAACAAAC,,
7542,R14663,,20,222,GTGTTTAAACAAACTTATGA,,
7543,R14663,,20,216,AAACAAACTTATGAAGGGGA,,
7544,R14663,,20,210,ACTTATGAAGGGGAAGTGGG,,
7545,R14663,,20,204,GAAGGGGAAGTGGGGTTTGG,,
7546,R14663,,20,198,GAAGTGGGGTTTGGTGGAGG,,
7547,R14663,,20,192,GGGTTTGGTGGAGGGGAATC,,
7548,R14663,,20,186,GGTGGAGGGGAATCAGAAGG,,
7549,R14663,,20,180,GGGGAATCAGAAGGGCATGA,,
7550,R14663,,20,174,TCAGAAGGGCATGAAGGTCC,,
7551,R14663,,20,168,GGGCATGAAGGTCCCTTGCT,,
7552,R14663,,20,162,GAAGGTCCCTTGCTTTTGCT,,
7553,R14663,,20,156,CCCTTGCTTTTGCTTTCCTT,,
7554,R14663,,20,150,CTTTTGCTTTCCTTCCTTAC,,
7555,R14663,,20,144,CTTTCCTTCCTTACCCAGAT,,
7556,R14663,,20,138,TTCCTTACCCAGATACCATC,,
7557,R14663,,20,132,ACCCAGATACCATCGGACAT,,
7558,R14663,,20,126,ATACCATCGGACATACTCTG,,
7559,R14663,,20,120,TCGGACATACTCTGTTTGGC,,
7560,R14663,,20,114,ATACTCTGTTTGGCACTTGA,,
7561,R14663,,20,108,TGTTTGGCACTTGAAGGCTC,,
7562,R14663,,20,102,GCACTTGAAGGCTCTGGTAT,,
7563,R14663,,20,96,GAAGGCTCTGGTATTTTGGC,,
7564,R14663,,20,90,TCTGGTATTTTGGCAAAGCA,,
7565,R14663,,20,84,ATTTTGGCAAAGCAATTATG,,
7566,R14663,,20,78,GCAAAGCAATTATGGGAGGC,,
7567,R14663,,20,72,CAATTATGGGAGGCCCAATC,,
7568,R14663,,20,66,TGGGAGGCCCAATCCTAGAC,,
7569,R14663,,20,60,GCCCAATCCTAGACGGCAAC,,
7570,R14663,,20,54,TCCTAGACGGCAACTGGGGA,,
7571,R14663,,20,48,ACGGCAACTGGGGACGAAGG,,
7572,R14663,,20,42,ACTGGGGACGAAGGAGTCTT,,
7573,R14663,,20,36,GACGAAGGAGTCTTTGTGAC,,

7574,R14663,,20,30,GGAGTCTTTGTGACTAGATG,,
7575,R14663,,20,24,TTTGTGACTAGATGGAAGTC,,
7576,R14663,,20,18,ACTAGATGGAAGTCTTTCCC,,
7577,R14663,,20,12,TGGAAGTCTTTCCCCTCTGC,,
7578,R14663,,20,6,TCTTTCCCCTCTGCAGTCTG,,
(GENBANK ACCESSION NO. R33355)
TTTAAANNTAAAGATTCTTTTATTAATAAATTCTCCCTCCCCTCCAAACTCTCCCCAAAATAAATATCTCCTCCCCGCTTTGGGGAGA
TTGGGGGGGTCTGTATCTTAGGGCCAGCCCTCCTAGTGGGCCAGCCCCCTAGTGTTAAAAATAGGNCCCTAACCCCCCAGGGGTGA
CCCCCGTGGGNGGGAATTTCAGGGACATCTGAGTGAGTGGGGGCCTAGTGTCAAGTCTTGCCCCCCAAGTCAGCCTGGGCCCCCAG
GCTTCTTAGGGAAGGGANGGGCACCCCCCTNCCCTGTTGCAAATGCTTGCAGTTCCTTAGTCAGTGTCAGCTGTTT
(SEQ ID NO: 7579)

7580,R33355,,20,317,AAACAGCTGACACTGACTAA,,
7581,R33355,,20,311,CTGACACTGACTAAGGAACT,,
7582,R33355,,20,305,CTGACTAAGGAACTGCAAGC,,
7583,R33355,,20,299,AAGGAACTGCAAGCATTTGC,,
7584,R33355,,20,293,CTGCAAGCATTTGCAACAGG,,
7585,R33355,,20,287,GCATTTGCAACAGGGNAGGG,,
7586,R33355,,20,281,GCAACAGGGNAGGGGGGTGC,,
7587,R33355,,20,275,GGGNAGGGGGGTGCCCNTCC,,
7588,R33355,,20,269,GGGGGTGCCCNTCCCTTCCC,,
7589,R33355,,20,263,GCCCNTCCCTTCCCTAAGAA,,
7590,R33355,,20,257,CCCTTCCCTAAGAAGCCTGG,,
7591,R33355,,20,251,CCTAAGAAGCCTGGGGGCCC,,
7592,R33355,,20,245,AAGCCTGGGGGCCCAGGCTG,,
7593,R33355,,20,239,GGGGGCCCAGGCTGACTTGG,,
7594,R33355,,20,233,CCAGGCTGACTTGGGGGGCA,,
7595,R33355,,20,227,TGACTTGGGGGGCAAGACTT,,
7596,R33355,,20,221,GGGGGGCAAGACTTGACACT,,
7597,R33355,,20,215,CAAGACTTGACACTAGGCCC,,
7598,R33355,,20,209,TTGACACTAGGCCCCCACTC,,
7599,R33355,,20,203,CTAGGCCCCCACTCACTCAG,,
7600,R33355,,20,197,CCCCACTCACTCAGATGTCC,,
7601,R33355,,20,191,TCACTCAGATGTCCCTGAAA,,
7602,R33355,,20,185,AGATGTCCCTGAAATTCCCN,,
7603,R33355,,20,179,CCCTGAAATTCCCNCCCACG,,
7604,R33355,,20,173,AATTCCCNCCCACGGGGGTC,,
7605,R33355,,20,167,CNCCCACGGGGGTCACCCCT,,
7606,R33355,,20,161,CGGGGGTCACCCCTGGGGGG,,
7607,R33355,,20,155,TCACCCCTGGGGGGTTAGGG,,
7608,R33355,,20,149,CTGGGGGGTTAGGGNCCTAT,,
7609,R33355,,20,143,GGTTAGGGNCCTATTTTTAA,,
7610,R33355,,20,137,GGNCCTATTTTTAACACTAG,,
7611,R33355,,20,131,ATTTTTAACACTAGGGGGCT,,
7612,R33355,,20,125,AACACTAGGGGGCTGGCCCA,,
7613,R33355,,20,119,AGGGGGCTGGCCCACTAGGA,,
7614,R33355,,20,113,CTGGCCCACTAGGAGGGCTG,,
7615,R33355,,20,107,CACTAGGAGGGCTGGCCCTA,,
7616,R33355,,20,101,GAGGGCTGGCCCTAAGATAC,,
7617,R33355,,20,95,TGGCCCTAAGATACAGACCC,,
7618,R33355,,20,89,TAAGATACAGACCCCCCCAA,,
7619,R33355,,20,83,ACAGACCCCCCCAATCTCCC,,
7620,R33355,,20,77,CCCCCCAATCTCCCCAAAGC,,
7621,R33355,,20,71,AATCTCCCCAAAGCGGGGAG,,
7622,R33355,,20,65,CCCAAAGCGGGGAGGAGATA,,
7623,R33355,,20,59,GCGGGGAGGAGATATTTATT,,
7624,R33355,,20,53,AGGAGATATTTATTTTGGGG,,
7625,R33355,,20,47,TATTTATTTTGGGGAGAGTT,,
7626,R33355,,20,41,TTTTGGGGAGAGTTTGGAGG,,
7627,R33355,,20,35,GGAGAGTTTGGAGGGGAGGG,,
7628,R33355,,20,29,TTTGGAGGGGAGGGAGAATT,,
7629,R33355,,20,23,GGGGAGGGAGAATTTATTAA,,
7630,R33355,,20,17,GGAGAATTTATTAATAAAAG,,
7631,R33355,,20,11,TTTATTAATAAAAGAATCTT,,
7632,R33355,,20,5,AATAAAAGAATCTTTANNTT,,
(GENBANK ACCESSION NO. T64626)
CTCAGGTGAGACCAGATTGTGTCATTTGGCTCCACCTTCATCTTGCAGANCAGCTGATCTCAGATTGCCAAGAAACTAGAAGCCACT
TGCACGGTGTGGCCAGAGCTCAGCTGGATGAGAGGCTGAGATGGGTGGCCAGCTTGTATACCAGTCCCTGAACTGAGCTGTTTACA
GGACTGGGGAGGCTCCACCCAGAAGGCTTTCATTTGTACTCTGCTGGGAGTGACTGGGAAAAACTCCTTCCCTGCTGCTGAGTGGAG
AGAGGCCTCATCCGGCTTTGACCCACCATCCGTTGCAGAAGCCTCCAGGGAGCAGCAATCCTAAGAGTTGGGAGGCAGCCAAGACC
CCCTTTCCTTTCAAAACCTTCCCGGAAGTNGTTTT
(SEQ ID NO: 7633)

7634,T64626,,20,362,AAAACNACTTCCGGGAAGGT,,
7635,T64626,,20,356,ACTTCCGGGAAGGTTTTGAA,,

7636,T64626,,20,350,GGGAAGGTTTTGAAAGGAAA,,
7637,T64626,,20,344,GTTTTGAAAGGAAAGGGGGT,,
7638,T64626,,20,338,AAAGGAAAGGGGGTCTTGGC,,
7639,T64626,,20,332,AAGGGGGTCTTGGCTGCCTC,,
7640,T64626,,20,326,GTCTTGGCTGCCTCCCAACT,,
7641,T64626,,20,320,GCTGCCTCCCAACTCTTAGG,,
7642,T64626,,20,314,TCCCAACTCTTAGGATTGCT,,
7643,T64626,,20,308,CTCTTAGGATTGCTGCTCCC,,
7644,T64626,,20,302,GGATTGCTGCTCCCTGGAGG,,
7645,T64626,,20,296,CTGCTCCCTGGAGGCTTCTG,,
7646,T64626,,20,290,CCTGGAGGCTTCTGCAACGG,,
7647,T64626,,20,284,GGCTTCTGCAACGGATGGTG,,
7648,T64626,,20,278,TGCAACGGATGGTGGGTCAA,,
7649,T64626,,20,272,GGATGGTGGGTCAAAGCCGG,,
7650,T64626,,20,266,TGGGTCAAAGCCGGATGAGG,,
7651,T64626,,20,260,AAAGCCGGATGAGGCCTCTC,,
7652,T64626,,20,254,GGATGAGGCCTCTCTCCACT,,
7653,T64626,,20,248,GGCCTCTCTCCACTCAGCAG,,
7654,T64626,,20,242,TCTCCACTCAGCAGCAGGGA,,
7655,T64626,,20,236,CTCAGCAGCAGGGAAGGAGT,,
7656,T64626,,20,230,AGCAGGGAAGGAGTTTTTCC,,
7657,T64626,,20,224,GAAGGAGTTTTTCCCAGTCA,,
7658,T64626,,20,218,GTTTTTCCCAGTCACTCCCA,,
7659,T64626,,20,212,CCCAGTCACTCCCAGCAGAG,,
7660,T64626,,20,206,CACTCCCAGCAGAGTACAAA,,
7661,T64626,,20,200,CAGCAGAGTACAAATGAAAG,,
7662,T64626,,20,194,AGTACAAATGAAAGCCTTCT,,
7663,T64626,,20,188,AATGAAAGCCTTCTGGGTGG,,
7664,T64626,,20,182,AGCCTTCTGGGTGGAGCCTC,,
7665,T64626,,20,176,CTGGGTGGAGCCTCCCCAGT,,
7666,T64626,,20,170,GGAGCCTCCCCAGTCCTGTA,,
7667,T64626,,20,164,TCCCCAGTCCTGTAAACAGC,,
7668,T64626,,20,158,GTCCTGTAAACAGCTCAGTT,,
7669,T64626,,20,152,TAAACAGCTCAGTTCAGGGA,,
7670,T64626,,20,146,GCTCAGTTCAGGGACTGGTA,,
7671,T64626,,20,140,TTCAGGGACTGGTATACAAG,,
7672,T64626,,20,134,GACTGGTATACAAGCTGGCC,,
7673,T64626,,20,128,TATACAAGCTGGCCACCCAT,,
7674,T64626,,20,122,AGCTGGCCACCCATCTCAGC,,
7675,T64626,,20,116,CCACCCATCTCAGCCTCTCA,,
7676,T64626,,20,110,ATCTCAGCCTCTCATCCAGC,,
7677,T64626,,20,104,GCCTCTCATCCAGCTGAGCT,,
7678,T64626,,20,98,CATCCAGCTGAGCTCTGGCC,,
7679,T64626,,20,92,GCTGAGCTCTGGCCACACCG,,
7680,T64626,,20,86,CTCTGGCCACACCGTGCAAG,,
7681,T64626,,20,80,CCACACCGTGCAAGTGGCTT,,
7682,T64626,,20,74,CGTGCAAGTGGCTTCTAGTT,,
7683,T64626,,20,68,AGTGGCTTCTAGTTTCTTGG,,
7684,T64626,,20,62,TTCTAGTTTCTTGGCAATCT,,
7685,T64626,,20,56,TTTCTTGGCAATCTGAGATC,,
7686,T64626,,20,50,GGCAATCTGAGATCAGCTGN,,
7687,T64626,,20,44,CTGAGATCAGCTGNTCTGCA,,
7688,T64626,,20,38,TCAGCTGNTCTGCAAGATGA,,
7689,T64626,,20,32,GNTCTGCAAGATGAAGGTGG,,
7690,T64626,,20,26,CAAGATGAAGGTGGAGCCAA,,
7691,T64626,,20,20,GAAGGTGGAGCCAAATGACA,,
7692,T64626,,20,14,GGAGCCAAATGACACAATCT,,
7693,T64626,,20,8,AAATGACACAATCTGGTCTC,,
7694,T64626,,20,2,CACAATCTGGTCTCACCTGA,,
(GENBANK ACCESSION NO. AA448261)
TTTCCAGAAAAGGATATTTTTTTATTCAAGTAACTGCAAATAGGAAACCAGAGAGGGAGCCCCAGGCTGGGACAAATCATGGCTA
CCCCTCCCCAACAGAACAGGGGGAGGAGGTGGCCCCTACACCCTTTATGGTCGATTCGGGCCCCCTTGCTCACTCTGCTGCAGCATC
CTAGGGGCAGGGCCAGCCTTCCCTGGGACTGGGGTAGTCGGTCACCCAGCCTGCCATGCCCCAGCCCCTCTTCCCCACAAAGAGTA
TCTTGGGGGAGGGGATCGTGGGCAGAACAGGAGGCAATGAGGATGAACATTTGGCGCTGGTAGCAGCAGCAATGACGGATTGTCG
AAGAATGGAACATTGAACA
(SEQ ID NO: 7695)

7696,AA448261,,20,344,TGTTCAATGTTCCATTCTTC,,
7697,AA448261,,20,338,ATGTTCCATTCTTCGACAAT,,
7698,AA448261,,20,332,CATTCTTCGACAATCCGTCA,,
7699,AA448261,,20,326,TCGACAATCCGTCATTGCTG,,
7700,AA448261,,20,320,ATCCGTCATTGCTGCTGCTA,,
7701,AA448261,,20,314,CATTGCTGCTGCTACCAGCG,,
7702,AA448261,,20,308,TGCTGCTACCAGCGCCAAAT,,
7703,AA448261,,20,302,TACCAGCGCCAAATGTTCAT,,

7704,AA448261,,20,296,CGCCAAATGTTCATCCTCAT,,
7705,AA448261,,20,290,ATGTTCATCCTCATTGCCTC,,
7706,AA448261,,20,284,ATCCTCATTGCCTCCTGTTC,,
7707,AA448261,,20,278,ATTGCCTCCTGTTCTGCCCA,,
7708,AA448261,,20,272,TCCTGTTCTGCCCACGATCC,,
7709,AA448261,,20,266,TCTGCCCACGATCCCCTCCC,,
7710,AA448261,,20,260,CACGATCCCCTCCCCCAAGA,,
7711,AA448261,,20,254,CCCCTCCCCCAAGATACTCT,,
7712,AA448261,,20,248,CCCCAAGATACTCTTTGTGG,,
7713,AA448261,,20,242,GATACTCTTTGTGGGGAAGA,,
7714,AA448261,,20,236,CTTTGTGGGGAAGAGGGGCT,,
7715,AA448261,,20,230,GGGGAAGAGGGGCTGGGGCA,,
7716,AA448261,,20,224,GAGGGGCTGGGGCATGGCAG,,
7717,AA448261,,20,218,CTGGGGCATGGCAGGCTGGG,,
7718,AA448261,,20,212,CATGGCAGGCTGGGTGACCG,,
7719,AA448261,,20,206,AGGCTGGGTGACCGACTACC,,
7720,AA448261,,20,200,GGTGACCGACTACCCCAGTC,,
7721,AA448261,,20,194,CGACTACCCCAGTCCCAGGG,,
7722,AA448261,,20,188,CCCCAGTCCCAGGGAAGGCT,,
7723,AA448261,,20,182,TCCCAGGGAAGGCTGGCCCT,,
7724,AA448261,,20,176,GGAAGGCTGGCCCTGCCCCT,,
7725,AA448261,,20,170,CTGGCCCTGCCCCTAGGATG,,
7726,AA448261,,20,164,CTGCCCCTAGGATGCTGCAG,,
7727,AA448261,,20,158,CTAGGATGCTGCAGCAGAGT,,
7728,AA448261,,20,152,TGCTGCAGCAGAGTGAGCAA,,
7729,AA448261,,20,146,AGCAGAGTGAGCAAGGGGGC,,
7730,AA448261,,20,140,GTGAGCAAGGGGGCCCGAAT,,
7731,AA448261,,20,134,AAGGGGGCCCGAATCGACCA,,
7732,AA448261,,20,128,GCCCGAATCGACCATAAAGG,,
7733,AA448261,,20,122,ATCGACCATAAAGGGTGTAG,,
7734,AA448261,,20,116,CATAAAGGGTGTAGGGGCCA,,
7735,AA448261,,20,110,GGGTGTAGGGGCCACCTCCT,,
7736,AA448261,,20,104,AGGGGCCACCTCCTCCCCCT,,
7737,AA448261,,20,98,CACCTCCTCCCCCTGTTCTG,,
7738,AA448261,,20,92,CTCCCCCTGTTCTGTTGGGG,,
7739,AA448261,,20,86,CTGTTCTGTTGGGGAGGGGT,,
7740,AA448261,,20,80,TGTTGGGGAGGGGTAGCCAT,,
7741,AA448261,,20,74,GGAGGGGTAGCCATGATTTG,,
7742,AA448261,,20,68,GTAGCCATGATTTGTCCCAG,,
7743,AA448261,,20,62,ATGATTTGTCCCAGCCTGGG,,
7744,AA448261,,20,56,TGTCCCAGCCTGGGGCTCCC,,
7745,AA448261,,20,50,AGCCTGGGGCTCCCTCTCTG,,
7746,AA448261,,20,44,GGGCTCCCTCTCTGGTTTCC,,
7747,AA448261,,20,38,CCTCTCTGGTTTCCTATTTG,,
7748,AA448261,,20,32,TGGTTTCCTATTTGCAGTTA,,
7749,AA448261,,20,26,CCTATTTGCAGTTACTTGAA,,
7750,AA448261,,20,20,TGCAGTTACTTGAATAAAAA,,
7751,AA448261,,20,14,TACTTGAATAAAAAAAATAT,,
7752,AA448261,,20,8,AATAAAAAAAATATCCTTTT,,
7753,AA448261,,20,2,AAAAATATCCTTTTCTGGAA,,
(GENBANK ACCESSION NO. R44202)
TTTTTTTTTTAGATTCTTAATTTCTATTTTATATTTTTAAAACATGATATTAGTATATAAGATAATATAGCTAGCCAGTGTTAGTAAAG
AAGTCATGATTGAGTCTTAAAAAAGAACAATCCAGTGTTGCAGTTCAGAGAGGTTAGCATGTCAGGGCGCAGGCTCGGCGAGGNTG
TGCTTTGCATTTAGGGACACAGCCCGGAGCCGCAGAAGGTCAGCAGGGAGCACGTCTGGGCACCTTCAGTACCAGGGCTGGGTGAG
AGAGCCCGGA
(SEQ ID NO: 7754)

7755,R44202,,20,252,TCCGGGCTCTCTCACCCAGC,,
7756,R44202,,20,246,CTCTCTCACCCAGCCCTGGT,,
7757,R44202,,20,240,CACCCAGCCCTGGTACTGAA,,
7758,R44202,,20,234,GCCCTGGTACTGAAGGTGCC,,
7759,R44202,,20,228,GTACTGAAGGTGCCCAGACG,,
7760,R44202,,20,222,AAGGTGCCCAGACGTGCTCC,,
7761,R44202,,20,216,CCCAGACGTGCTCCCTGCTG,,
7762,R44202,,20,210,CGTGCTCCCTGCTGACCTTC,,
7763,R44202,,20,204,CCCTGCTGACCTTCTGCGGC,,
7764,R44202,,20,198,TGACCTTCTGCGGCTCCGGG,,
7765,R44202,,20,192,TCTGCGGCTCCGGGCTGTGT,,
7766,R44202,,20,186,GCTCCGGGCTGTGTCCCTAA,,
7767,R44202,,20,180,GGCTGTGTCCCTAAATGCAA,,
7768,R44202,,20,174,GTCCCTAAATGCAAAGCACA,,
7769,R44202,,20,168,AAATGCAAAGCACANCCTCG,,
7770,R44202,,20,162,AAAGCACANCCTCGCCGAGC,,
7771,R44202,,20,156,CANCCTCGCCGAGCCTGCGC,,
7772,R44202,,20,150,CGCCGAGCCTGCGCCCTGAC,,

7773,R44202,,20,144,GCCTGCGCCCTGACATGCTA,,
7774,R44202,,20,138,GCCCTGACATGCTAACCTCT,,
7775,R44202,,20,132,ACATGCTAACCTCTCTGAAC,,
7776,R44202,,20,126,TAACCTCTCTGAACTGCAAC,,
7777,R44202,,20,120,CTCTGAACTGCAACACTGGA,,
7778,R44202,,20,114,ACTGCAACACTGGATTGTTC,,
7779,R44202,,20,108,ACACTGGATTGTTCTTTTTT,,
7780,R44202,,20,102,GATTGTTCTTTTTTAAGACT,,
7781,R44202,,20,96,TCTTTTTTAAGACTCAATCA,,
7782,R44202,,20,90,TTAAGACTCAATCATGACTT,,
7783,R44202,,20,84,CTCAATCATGACTTCTTTAC,,
7784,R44202,,20,78,CATGACTTCTTTACTAACAC,,
7785,R44202,,20,72,TTCTTTACTAACACTGGCTA,,
7786,R44202,,20,66,ACTAACACTGGCTAGCTATA,,
7787,R44202,,20,60,ACTGGCTAGCTATATTATCT,,
7788,R44202,,20,54,TAGCTATATTATCTTATATA,,
7789,R44202,,20,48,TATTATCTTATATACTAATA,,
7790,R44202,,20,42,CTTATATACTAATATCATGT,,
7791,R44202,,20,36,TACTAATATCATGTTTTAAA,,
7792,R44202,,20,30,TATCATGTTTTAAAAATATA,,
7793,R44202,,20,24,GTTTTAAAAATATAAAATAG,,
7794,R44202,,20,18,AAAATATAAAATAGAAATTA,,
7795,R44202,,20,12,TAAAATAGAAATTAAGAATC,,
7796,R44202,,20,6,AGAAATTAAGAATCTAAAAA,,
(GENBANK ACCESSION NO. W81570)
GCGACCGCTCGCGCCTCTCGANGGACAACTCGCACTTGCTCAACAAGGGCCTGCCGCTTGGGTCNGACCTCNGATCATGAACGGGC
ACCTGCANCCGCGGCCCCTGGTGGCATTGNTGGATGGCCGGGACTGCACAGTGGAGATGCCCATCCTGAAGGACGTGGCCACTGTG
GCTTCTGCGACGCGCAGTCCACGCAGGAGATCCATGAGAAGGTCCTGAACGAGGCTGTGGGGGCCCTGATGTACCACACCATCACT
CTCACCAGGGAGGACCTGGAGAAGTTCAAAGCCCTCCGCATCATCGTCCGGATTGGCAGTGGTTTTGACAACATCGACATCAAGTC
GGCCGGGGATTTTAGGCATTTGCCGTTCTGCAACGTGCCCGCGGCGTTCTGTTGGGAGGAGACGGCCGACTTCGA
(SEQ ID NO: 7797)

7798,W81570,,20,400,TCGAAGTCGGCCGTCTCCTC,,
7799,W81570,,20,394,TCGGCCGTCTCCTCCCAACA,,
7800,W81570,,20,388,GTCTCCTCCCAACAGAACGC,,
7801,W81570,,20,382,TCCCAACAGAACGCCGCGGG,,
7802,W81570,,20,376,CAGAACGCCGCGGGCACGTT,,
7803,W81570,,20,370,GCCGCGGGCACGTTGCAGAA,,
7804,W81570,,20,364,GGCACGTTGCAGAACGGCAA,,
7805,W81570,,20,358,TTGCAGAACGGCAAATGCCT,,
7806,W81570,,20,352,AACGGCAAATGCCTAAAATC,,
7807,W81570,,20,346,AAATGCCTAAAATCCCCGGC,,
7808,W81570,,20,340,CTAAAATCCCCGGCCGACTT,,
7809,W81570,,20,334,TCCCCGGCCGACTTGATGTC,,
7810,W81570,,20,328,GCCGACTTGATGTCGATGTT,,
7811,W81570,,20,322,TTGATGTCGATGTTGTCAAA,,
7812,W81570,,20,316,TCGATGTTGTCAAAACCACT,,
7813,W81570,,20,310,TTGTCAAAACCACTGCCAAT,,
7814,W81570,,20,304,AAACCACTGCCAATCCGGAC,,
7815,W81570,,20,298,CTGCCAATCCGGACGATGAT,,
7816,W81570,,20,292,ATCCGGACGATGATGCGGAG,,
7817,W81570,,20,286,ACGATGATGCGGAGGGCTTT,,
7818,W81570,,20,280,ATGCGGAGGGCTTTGAACTT,,
7819,W81570,,20,274,AGGGCTTTGAACTTCTCCAG,,
7820,W81570,,20,268,TTGAACTTCTCCAGGTCCTC,,
7821,W81570,,20,262,TTCTCCAGGTCCTCCCTGGT,,
7822,W81570,,20,256,AGGTCCTCCCTGGTGAGAGT,,
7823,W81570,,20,250,TCCCTGGTGAGAGTGATGGT,,
7824,W81570,,20,244,GTGAGAGTGATGGTGTGGTA,,
7825,W81570,,20,238,GTGATGGTGTGGTACATCAG,,
7826,W81570,,20,232,GTGTGGTACATCAGGGCCCC,,
7827,W81570,,20,226,TACATCAGGGCCCCCACAGC,,
7828,W81570,,20,220,AGGGCCCCCACAGCCTCGTT,,
7829,W81570,,20,214,CCCACAGCCTCGTTCAGGAC,,
7830,W81570,,20,208,GCCTCGTTCAGGACCTTCTC,,
7831,W81570,,20,202,TTCAGGACCTTCTCATGGAT,,
7832,W81570,,20,196,ACCTTCTCATGGATCTCCTG,,
7833,W81570,,20,190,TCATGGATCTCCTGCGTGGA,,
7834,W81570,,20,184,ATCTCCTGCGTGGACTGCGC,,
7835,W81570,,20,178,TGCGTGGACTGCGCGTCGCA,,
7836,W81570,,20,172,GACTGCGCGTCGCAGAAGCC,,
7837,W81570,,20,166,GCGTCGCAGAAGCCACAGTG,,
7838,W81570,,20,160,CAGAAGCCACAGTGGCCACG,,
7839,W81570,,20,154,CCACAGTGGCCACGTCCTTC,,
7840,W81570,,20,148,TGGCCACGTCCTTCAGGATG,,

7841,W81570,,20,142,CGTCCTTCAGGATGGGCATC,,
7842,W81570,,20,136,TCAGGATGGGCATCTCCACT,,
7843,W81570,,20,130,TGGGCATCTCCACTGTGCAG,,
7844,W81570,,20,124,TCTCCACTGTGCAGTCCCGG,,
7845,W81570,,20,118,CTGTGCAGTCCCGGCCATCC,,
7846,W81570,,20,112,AGTCCCGGCCATCCANCAAT,,
7847,W81570,,20,106,GGCCATCCANCAATGCCACC,,
7848,W81570,,20,100,CCANCAATGCCACCAGGGGC,,
7849,W81570,,20,94,ATGCCACCAGGGGCCGCGGN,,
7850,W81570,,20,88,CCAGGGGCCGCGGNTGCAGG,,
7851,W81570,,20,82,GCCGCGGNTGCAGGTGCCCG,,
7852,W81570,,20,76,GNTGCAGGTGCCCGTTCATG,,
7853,W81570,,20,70,GGTGCCCGTTCATGATCNGA,,
7854,W81570,,20,64,CGTTCATGATCNGAGGTCNG,,
7855,W81570,,20,58,TGATCNGAGGTCNGACCCAA,,
7856,W81570,,20,52,GAGGTCNGACCCAAGCGGCA,,
7857,W81570,,20,46,NGACCCAAGCGGCAGGCCCT,,
7858,W81570,,20,40,AAGCGGCAGGCCCTTGTTGA,,
7859,W81570,,20,34,CAGGCCCTTGTTGAGCAAGT,,
7860,W81570,,20,28,CTTGTTGAGCAAGTGCGAGT,,
7861,W81570,,20,22,GAGCAAGTGCGAGTTGTCCN,,
7862,W81570,,20,16,GTGCGAGTTGTCCNTCGAGA,,
7863,W81570,,20,10,GTTGTCCNTCGAGAGGCGCG,,
7864,W81570,,20,4,CNTCGAGAGGCGCGAGCGGT,,
(GENBANK ACCESSION NO. AA128561)
ATTAGAAAAAAAAACTTCTTTAATGGGAAATTTTACGATTGAAATGATGTTTCATCTTATAGACCACAAACAAATGTTTTTAGACAT
TGAAAAGTGGTTAAAGACCAACTGCGCCCAGTCCCCCAAGTGCCATTTTCTGAGTGCAGAATGGAGGGTGACGTCTTGAGCTGATG
CTGTGTCCCCAGCATCAGGTTTTCTGTTTTCCCTCTTCTCCCTTTATTCCTTCCTTGTCCATTGCCCTCAACCTTCTTTTTCTGTTTGCT
CTGGCCTGGTTCAGTATAACATATCCATGAACTCTAGTATGGGCCTACGGACAATCATAGCTACAATCAGACTTTCTAAGCAAATGG
GGAATGTGGATNTACATATAACCATTAGAAACCCTATCATCACCTCCTAGAGGGGAAGTGAATTTCTTAAT
(SEQ ID NO: 7865)

7866,AA128561,,20,402,ATTAAGAAATTCACTTCCCC,,
7867,AA128561,,20,396,AAATTCACTTCCCCTCTAGG,,
7868,AA128561,,20,390,ACTTCCCCTCTAGGAGGTGA,,
7869,AA128561,,20,384,CCTCTAGGAGGTGATGATAG,,
7870,AA128561,,20,378,GGAGGTGATGATAGGGTTTC,,
7871,AA128561,,20,372,GATGATAGGGTTTCTAATGG,,
7872,AA128561,,20,366,AGGGTTTCTAATGGTTATAT,,
7873,AA128561,,20,360,TCTAATGGTTATATGTANAT,,
7874,AA128561,,20,354,GGTTATATGTANATCCACAT,,
7875,AA128561,,20,348,ATGTANATCCACATTCCCCA,,
7876,AA128561,,20,342,ATCCACATTCCCCATTTGCT,,
7877,AA128561,,20,336,ATTCCCCATTTGCTTAGAAA,,
7878,AA128561,,20,330,CATTTGCTTAGAAAGTCTGA,,
7879,AA128561,,20,324,CTTAGAAAGTCTGATTGTAG,,
7880,AA128561,,20,318,AAGTCTGATTGTAGCTATGA,,
7881,AA128561,,20,312,GATTGTAGCTATGATTGTCC,,
7882,AA128561,,20,306,AGCTATGATTGTCCGTAGGC,,
7883,AA128561,,20,300,GATTGTCCGTAGGCCCATAC,,
7884,AA128561,,20,294,CCGTAGGCCCATACTAGAGT,,
7885,AA128561,,20,288,GCCCATACTAGAGTTCATGG,,
7886,AA128561,,20,282,ACTAGAGTTCATGGATATGT,,
7887,AA128561,,20,276,GTTCATGGATATGTTATACT,,
7888,AA128561,,20,270,GGATATGTTATACTGAACCA,,
7889,AA128561,,20,264,GTTATACTGAACCAGGCCAG,,
7890,AA128561,,20,258,CTGAACCAGGCCAGAGCAAA,,
7891,AA128561,,20,252,CAGGCCAGAGCAAACAGAAA,,
7892,AA128561,,20,246,AGAGCAAACAGAAAAAGAAG,,
7893,AA128561,,20,240,AACAGAAAAAGAAGGTTGAG,,
7894,AA128561,,20,234,AAAAGAAGGTTGAGGGCAAT,,
7895,AA128561,,20,228,AGGTTGAGGGCAATGGACAA,,
7896,AA128561,,20,222,AGGGCAATGGACAAGGAAGG,,
7897,AA128561,,20,216,ATGGACAAGGAAGGAATAAA,,
7898,AA128561,,20,210,AAGGAAGGAATAAAGGGAGA,,
7899,AA128561,,20,204,GGAATAAAGGGAGAAGAGGG,,
7900,AA128561,,20,198,AAGGGAGAAGAGGGAAAACA,,
7901,AA128561,,20,192,GAAGAGGGAAAACAGAAAAC,,
7902,AA128561,,20,186,GGAAAACAGAAAACCTGATG,,
7903,AA128561,,20,180,CAGAAAACCTGATGCTGGGG,,
7904,AA128561,,20,174,ACCTGATGCTGGGGACACAG,,
7905,AA128561,,20,168,TGCTGGGGACACAGCATCAG,,
7906,AA128561,,20,162,GGACACAGCATCAGCTCAAG,,
7907,AA128561,,20,156,AGCATCAGCTCAAGACGTCA,,
7908,AA128561,,20,150,AGCTCAAGACGTCACCCTCC,,

7909,AA128561,,20,144,AGACGTCACCCTCCATTCTG,,
7910,AA128561,,20,138,CACCCTCCATTCTGCACTCA,,
7911,AA128561,,20,132,CCATTCTGCACTCAGAAAAT,,
7912,AA128561,,20,126,TGCACTCAGAAAATGGCACT,,
7913,AA128561,,20,120,CAGAAAATGGCACTTGGGGG,,
7914,AA128561,,20,114,ATGGCACTTGGGGGACTGGG,,
7915,AA128561,,20,108,CTTGGGGGACTGGGCGCAGT,,
7916,AA128561,,20,102,GGACTGGGCGCAGTTGGTCT,,
7917,AA128561,,20,96,GGCGCAGTTGGTCTTTAACC,,
7918,AA128561,,20,90,GTTGGTCTTTAACCACTTTT,,
7919,AA128561,,20,84,CTTTAACCACTTTTCAATGT,,
7920,AA128561,,20,78,CCACTTTTCAATGTCTAAAA,,
7921,AA128561,,20,72,TTCAATGTCTAAAAACATTT,,
7922,AA128561,,20,66,GTCTAAAAACATTTGTTTGT,,
7923,AA128561,,20,60,AAACATTTGTTTGTGGTCTA,,
7924,AA128561,,20,54,TTGTTTGTGGTCTATAAGAT,,
7925,AA128561,,20,48,GTGGTCTATAAGATGAAACA,,
7926,AA128561,,20,42,TATAAGATGAAACATCATTT,,
7927,AA128561,,20,36,ATGAAACATCATTTCAATCG,,
7928,AA128561,,20,30,CATCATTTCAATCGTAAAAT,,
7929,AA128561,,20,24,TTCAATCGTAAAATTTCCCA,,
7930,AA128561,,20,18,CGTAAAATTTCCCATTAAAG,,
7931,AA128561,,20,12,ATTTCCCATTAAAGAAGTTT,,
7932,AA128561,,20,6,CATTAAAGAAGTTTTTTTTT,,
(GENBANK ACCESSION NO. N58473)
CTGGGTATATTAAGACATTAATTATACTCTGGATGAAAATAAGGAATGTAGAAAAAAATGTGCCAAATATTACTCACTGCATGTGA
ACACGGATAATTAACAGACAATCCAGACAATATATCTGCTCATAGTCAATATTTTTATCGTATTTTTTTTGACTGGGAAATGTACAC
ACTTTAGTTTCTCTGGTTCTCTGAATAACTGCCATCTATTTCTAAGCAACAGGAAAAGAATCTATATGAAACTTCTCGAAAAGTACTT
TCTGGCCAGGCGTGGTTGTTCACACCTGTAATTTCAGCATGTTGGGAGGCTGAGGCAGGTGGATTACTTGAGGCCAGGAGTTCAAGA
CCAGCCTGGCCAACATGGCGAAACCCCGTCTCTACTAAACATACAAAAAATCAGTTGGGCATGGTGGCGTGTGCTGTAGTCCCAGC
TACTTGGGAGGCTGAGGCACAAGAATTGCTTCAACCCAGGGGACAGAAAAGAAAAGTACATTCTTTGGACATAGCTTCATTGCAGA
AAAAGAAAAAAAATCNCATCAAAGCAATTCATCTCTAACTAAAATACTAGGCATGTTGGTCNCGTGCCGA
(SEQ ID NO: 7933)

7934,N58473,,20,572,TCGGCACGNGACCAACATGC,,
7935,N58473,,20,566,CGNGACCAACATGCCTAGTA,,
7936,N58473,,20,560,CAACATGCCTAGTATTTTAG,,
7937,N58473,,20,554,GCCTAGTATTTTAGTTAGAG,,
7938,N58473,,20,548,TATTTTAGTTAGAGATGAAT,,
7939,N58473,,20,542,AGTTAGAGATGAATTGCTTT,,
7940,N58473,,20,536,AGATGAATTGCTTTGATGNG,,
7941,N58473,,20,530,ATTGCTTTGATGNGATTTTT,,
7942,N58473,,20,524,TTGATGNGATTTTTTTTCTT,,
7943,N58473,,20,518,NGATTTTTTTTCTTTTTCTG,,
7944,N58473,,20,512,TTTTTCTTTTTCTGCAATGA,,
7945,N58473,,20,506,TTTTTCTGCAATGAAGCTAT,,
7946,N58473,,20,500,TGCAATGAAGCTATGTCCAA,,
7947,N58473,,20,494,GAAGCTATGTCCAAAGAATG,,
7948,N58473,,20,488,ATGTCCAAAGAATGTACTTT,,
7949,N58473,,20,482,AAAGAATGTACTTTTCTTTT,,
7950,N58473,,20,476,TGTACTTTTCTTTTCTGTCC,,
7951,N58473,,20,470,TTTCTTTTCTGTCCCCTGGG,,
7952,N58473,,20,464,TTCTGTCCCCTGGGTTGAAG,,
7953,N58473,,20,458,CCCCTGGGTTGAAGCAATTC,,
7954,N58473,,20,452,GGTTGAAGCAATTCTTGTGC,,
7955,N58473,,20,446,AGCAATTCTTGTGCCTCAGC,,
7956,N58473,,20,440,TCTTGTGCCTCAGCCTCCCA,,
7957,N58473,,20,434,GCCTCAGCCTCCCAAGTAGC,,
7958,N58473,,20,428,GCCTCCCAAGTAGCTGGGAC,,
7959,N58473,,20,422,CAAGTAGCTGGGACTACAGC,,
7960,N58473,,20,416,GCTGGGACTACAGCACACGC,,
7961,N58473,,20,410,ACTACAGCACACGCCACCAT,,
7962,N58473,,20,404,GCACACGCCACCATGCCCAA,,
7963,N58473,,20,398,GCCACCATGCCCAACTGATT,,
7964,N58473,,20,392,ATGCCCAACTGATTTTTTGT,,
7965,N58473,,20,386,AACTGATTTTTTGTATGTTT,,
7966,N58473,,20,380,TTTTTTGTATGTTTAGTAGA,,
7967,N58473,,20,374,GTATGTTTAGTAGAGACGGG,,
7968,N58473,,20,368,TTAGTAGAGACGGGGTTTCG,,
7969,N58473,,20,362,GAGACGGGGTTTCGCCATGT,,
7970,N58473,,20,356,GGGTTTCGCCATGTTGGCCA,,
7971,N58473,,20,350,CGCCATGTTGGCCAGGCTGG,,
7972,N58473,,20,344,GTTGGCCAGGCTGGTCTTGA,,
7973,N58473,,20,338,CAGGCTGGTCTTGAACTCCT,,
7974,N58473,,20,332,GGTCTTGAACTCCTGGCCTC,,

7975,N58473,,20,326,GAACTCCTGGCCTCAAGTAA,,
7976,N58473,,20,320,CTGGCCTCAAGTAATCCACC,,
7977,N58473,,20,314,TCAAGTAATCCACCTGCCTC,,
7978,N58473,,20,308,AATCCACCTGCCTCAGCCTC,,
7979,N58473,,20,302,CCTGCCTCAGCCTCCCAACA,,
7980,N58473,,20,296,TCAGCCTCCCAACATGCTGA,,
7981,N58473,,20,290,TCCCAACATGCTGAAATTAC,,
7982,N58473,,20,284,CATGCTGAAATTACAGGTGT,,
7983,N58473,,20,278,GAAATTACAGGTGTGAACAA,,
7984,N58473,,20,272,ACAGGTGTGAACAACCACGC,,
7985,N58473,,20,266,GTGAACAACCACGCCTGGCC,,
7986,N58473,,20,260,AACCACGCCTGGCCAGAAAG,,
7987,N58473,,20,254,GCCTGGCCAGAAAGTACTTT,,
7988,N58473,,20,248,CCAGAAAGTACTTTTCGAGA,,
7989,N58473,,20,242,AGTACTTTTCGAGAAGTTTC,,
7990,N58473,,20,236,TTTCGAGAAGTTTCATATAG,,
7991,N58473,,20,230,GAAGTTTCATATAGATTCTT,,
7992,N58473,,20,224,TCATATAGATTCTTTTCCTG,,
7993,N58473,,20,218,AGATTCTTTTCCTGTTGCTT,,
7994,N58473,,20,212,TTTTCCTGTTGCTTAGAAAT,,
7995,N58473,,20,206,TGTTGCTTAGAAATAGATGG,,
7996,N58473,,20,200,TTAGAAATAGATGGCAGTTA,,
7997,N58473,,20,194,ATAGATGGCAGTTATTCAGA,,
7998,N58473,,20,188,GGCAGTTATTCAGAGAACCA,,
7999,N58473,,20,182,TATTCAGAGAACCAGAGAAA,,
8000,N58473,,20,176,GAGAACCAGAGAAACTAAAG,,
8001,N58473,,20,170,CAGAGAAACTAAAGTGTGTA,,
8002,N58473,,20,164,AACTAAAGTGTGTACATTTC,,
8003,N58473,,20,158,AGTGTGTACATTTCCCAGTC,,
8004,N58473,,20,152,TACATTTCCCAGTCAAAAAA,,
8005,N58473,,20,146,TCCCAGTCAAAAAAAAATAC,,
8006,N58473,,20,140,TCAAAAAAAAATACGATAAA,,
8007,N58473,,20,134,AAAAATACGATAAAAATATT,,
8008,N58473,,20,128,ACGATAAAAATATTGACTAT,,
8009,N58473,,20,122,AAAATATTGACTATGAGCAG,,
8010,N58473,,20,116,TTGACTATGAGCAGATATAT,,
8011,N58473,,20,110,ATGAGCAGATATATTGTCTG,,
8012,N58473,,20,104,AGATATATTGTCTGGATTGT,,
8013,N58473,,20,98,ATTGTCTGGATTGTCTGTTA,,
8014,N58473,,20,92,TGGATTGTCTGTTAATTATC,,
8015,N58473,,20,86,GTCTGTTAATTATCCGTGTT,,
8016,N58473,,20,80,TAATTATCCGTGTTCACATG,,
8017,N58473,,20,74,TCCGTGTTCACATGCAGTGA,,
8018,N58473,,20,68,TTCACATGCAGTGAGTAATA,,
8019,N58473,,20,62,TGCAGTGAGTAATATTTGGC,,
8020,N58473,,20,56,GAGTAATATTTGGCACATTT,,
8021,N58473,,20,50,TATTTGGCACATTTTTTTCT,,
8022,N58473,,20,44,GCACATTTTTTTCTACATTC,,
8023,N58473,,20,38,TTTTTTCTACATTCCTTATT,,
8024,N58473,,20,32,CTACATTCCTTATTTTCATC,,
8025,N58473,,20,26,TCCTTATTTTCATCCAGAGT,,
8026,N58473,,20,20,TTTTCATCCAGAGTATAATT,,
8027,N58473,,20,14,TCCAGAGTATAATTAATGTC,,
8028,N58473,,20,8,GTATAATTAATGTCTTAATA,,
8029,N58473,,20,2,TTAATGTCTTAATATACCCA,,
(GENBANK ACCESSION NO. AA679352)
TTTTTTTTTTTTTTTTTACTTGACAAATGCAGAGCAATTAAATTCTTTATTATAAAAATCTCAAAAATGTCCACCTTTACTGGAGACCA
ATCTTCTAAAAGGTCAAAAGCAATCCTGCTGTTTCTCTCTGAAAGCTAAACTCCTTTAAATGAGAATACGAGAATACCCAGAATTTT
ATTCCCAGCCTTTGTGTGGAAAAGGCAGTTTGCATTCTTAGGAAACATCTAACTGTTACCTAAACCATAAATATTTCTATCTACTCCA
TTCAACCCAATTAAAGAAAACAAAATGATGAGAAAAATAGGAGCCGAACAGAAAGAAAATTCACATCATTTTCTACTATTACGAAC
ATTCAAATGGTGCTTCAAATTAAATAATTTTAATTATCATTCTAGCCAAGATCATACTAAGTAGGATCTCCTGACAGTCCCATATGGC
AGGGATTTAACCTAAAACGTGGCACTGAATGCTTCGCCA
(SEQ ID NO: 8030)

8031,AA679352,,20,458,TGGCGAAGCATTCAGTGCCA,,
8032,AA679352,,20,452,AGCATTCAGTGCCACGTTTT,,
8033,AA679352,,20,446,CAGTGCCACGTTTTAGGTTA,,
8034,AA679352,,20,440,CACGTTTTAGGTTAAATCCC,,
8035,AA679352,,20,434,TTAGGTTAAATCCCTGCCAT,,
8036,AA679352,,20,428,TAAATCCCTGCCATATGGGA,,
8037,AA679352,,20,422,CCTGCCATATGGGACTGTCA,,
8038,AA679352,,20,416,ATATGGGACTGTCAGGAGAT,,
8039,AA679352,,20,410,GACTGTCAGGAGATCCTACT,,
8040,AA679352,,20,404,CAGGAGATCCTACTTAGTAT,,
8041,AA679352,,20,398,ATCCTACTTAGTATGATCTT,,

8042,AA679352,,20,392,CTTAGTATGATCTTGGCTAG,,
8043,AA679352,,20,386,ATGATCTTGGCTAGAATGAT,,
8044,AA679352,,20,380,TTGGCTAGAATGATAATTAA,,
8045,AA679352,,20,374,AGAATGATAATTAAAATTAT,,
8046,AA679352,,20,368,ATAATTAAAATTATTTAATT,,
8047,AA679352,,20,362,AAAATTATTTAATTTGAAGC,,
8048,AA679352,,20,356,ATTTAATTTGAAGCACCATT,,
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8052,AA679352,,20,332,TGTTCGTAATAGTAGAAAAT,,
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8054,AA679352,,20,320,TAGAAAATGATGTGAATTTT,,
8055,AA679352,,20,314,ATGATGTGAATTTTCTTTCT,,
8056,AA679352,,20,308,TGAATTTTCTTTCTGTTCGG,,
8057,AA679352,,20,302,TTCTTTCTGTTCGGCTCCTA,,
8058,AA679352,,20,296,CTGTTCGGCTCCTATTTTTC,,
8059,AA679352,,20,290,GGCTCCTATTTTTCTCATCA,,
8060,AA679352,,20,284,TATTTTTCTCATCATTTTGT,,
8061,AA679352,,20,278,TCTCATCATTTTGTTTTCTT,,
8062,AA679352,,20,272,CATTTTGTTTTCTTTAATTG,,
8063,AA679352,,20,266,GTTTTCTTTAATTGGGTTGA,,
8064,AA679352,,20,260,TTTAATTGGGTTGAATGGAG,,
8065,AA679352,,20,254,TGGGTTGAATGGAGTAGATA,,
8066,AA679352,,20,248,GAATGGAGTAGATAGAAATA,,
8067,AA679352,,20,242,AGTAGATAGAAATATTTATG,,
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8069,AA679352,,20,230,TATTTATGGTTTAGGTAACA,,
8070,AA679352,,20,224,TGGTTTAGGTAACAGTTAGA,,
8071,AA679352,,20,218,AGGTAACAGTTAGATGTTTC,,
8072,AA679352,,20,212,CAGTTAGATGTTTCCTAAGA,,
8073,AA679352,,20,206,GATGTTTCCTAAGAATGCAA,,
8074,AA679352,,20,200,TCCTAAGAATGCAAACTGCC,,
8075,AA679352,,20,194,GAATGCAAACTGCCTTTTCC,,
8076,AA679352,,20,188,AAACTGCCTTTTCCACACAA,,
8077,AA679352,,20,182,CCTTTTCCACACAAAGGCTG,,
8078,AA679352,,20,176,CCACACAAAGGCTGGGAATA,,
8079,AA679352,,20,170,AAAGGCTGGGAATAAAATTC,,
8080,AA679352,,20,164,TGGGAATAAAATTCTGGGTA,,
8081,AA679352,,20,158,TAAAATTCTGGGTATTCTCG,,
8082,AA679352,,20,152,TCTGGGTATTCTCGTATTCT,,
8083,AA679352,,20,146,TATTCTCGTATTCTCATTTA,,
8084,AA679352,,20,140,CGTATTCTCATTTAAAGGAG,,
8085,AA679352,,20,134,CTCATTTAAAGGAGTTTAGC,,
8086,AA679352,,20,128,TAAAGGAGTTTAGCTTTCAG,,
8087,AA679352,,20,122,AGTTTAGCTTTCAGAGAGAA,,
8088,AA679352,,20,116,GCTTTCAGAGAGAAACAGCA,,
8089,AA679352,,20,110,AGAGAGAAACAGCAGGATTG,,
8090,AA679352,,20,104,AAACAGCAGGATTGCTTTTG,,
8091,AA679352,,20,98,CAGGATTGCTTTTGACCTTT,,
8092,AA679352,,20,92,TGCTTTTGACCTTTTAGAAG,,
8093,AA679352,,20,86,TGACCTTTTAGAAGATTGGT,,
8094,AA679352,,20,80,TTTAGAAGATTGGTCTCCAG,,
8095,AA679352,,20,74,AGATTGGTCTCCAGTAAAGG,,
8096,AA679352,,20,68,GTCTCCAGTAAAGGTGGACA,,
8097,AA679352,,20,62,AGTAAAGGTGGACATTTTTG,,
8098,AA679352,,20,56,GGTGGACATTTTTGAGATTT,,
8099,AA679352,,20,50,CATTTTTGAGATTTTTATAA,,
8100,AA679352,,20,44,TGAGATTTTTATAATAAAGA,,
8101,AA679352,,20,38,TTTTATAATAAAGAATTTAA,,
8102,AA679352,,20,32,AATAAAGAATTTAATTGCTC,,
8103,AA679352,,20,26,GAATTTAATTGCTCTGCATT,,
8104,AA679352,,20,20,AATTGCTCTGCATTTGTCAA,,
8105,AA679352,,20,14,TCTGCATTTGTCAAGTAAAA,,
8106,AA679352,,20,8,TTTGTCAAGTAAAAAAAAAA,,
8107,AA679352,,20,2,AAGTAAAAAAAAAAAAAAAA,,
(GENBANK ACCESSION NO. N55459)
TCAGGTCTAAAGTGTTTAATTATCACTCACATATTTCACAGGAAAAGGAATGTAGCAAATGGGTCAAGGTGGTATAAAAAAAAAT
CCAGGTTTGTACATGTCTCTCTGTTTACATCTGGGAGAAAGGTTGTCCTGGCATCAGTCGCAGCAGCTGCACTTCTCTTGACGCCCCT
TTGCNAACACAGCCCTGGGCACACTTGCTACAGCCCACGGGCANGCAGGAGCAGCAGCTCTTCTTGCANGAGGGTG
(SEQ ID NO: 8108)

8109,N55459,,20,231,CACCCTCNTGCAAGAAGAGC,,
8110,N55459,,20,225,CNTGCAAGAAGAGCTGCTGC,,
8111,N55459,,20,219,AGAAGAGCTGCTGCTCCTGC,,

8112,N55459,,20,213,GCTGCTGCTCCTGCNTGCCC,,
8113,N55459,,20,207,GCTCCTGCNTGCCCGTGGGC,,
8114,N55459,,20,201,GCNTGCCCGTGGGCTGTAGC,,
8115,N55459,,20,195,CCGTGGGCTGTAGCAAGTGT,,
8116,N55459,,20,189,GCTGTAGCAAGTGTGCCCAG,,
8117,N55459,,20,183,GCAAGTGTGCCCAGGGCTGT,,
8118,N55459,,20,177,GTGCCCAGGGCTGTGTTNGC,,
8119,N55459,,20,171,AGGGCTGTGTTNGCAAAGGG,,
8120,N55459,,20,165,GTGTTNGCAAAGGGGCGTCA,,
8121,N55459,,20,159,GCAAAGGGGCGTCAAGAGAA,,
8122,N55459,,20,153,GGGCGTCAAGAGAAGTGCAG,,
8123,N55459,,20,147,CAAGAGAAGTGCAGCTGCTG,,
8124,N55459,,20,141,AAGTGCAGCTGCTGCGACTG,,
8125,N55459,,20,135,AGCTGCTGCGACTGATGCCA,,
8126,N55459,,20,129,TGCGACTGATGCCAGGACAA,,
8127,N55459,,20,123,TGATGCCAGGACAACCTTTC,,
8128,N55459,,20,117,CAGGACAACCTTTCTCCCAG,,
8129,N55459,,20,111,AACCTTTCTCCCAGATGTAA,,
8130,N55459,,20,105,TCTCCCAGATGTAAACAGAG,,
8131,N55459,,20,99,AGATGTAAACAGAGAGACAT,,
8132,N55459,,20,93,AAACAGAGAGACATGTACAA,,
8133,N55459,,20,87,AGAGACATGTACAAACCTGG,,
8134,N55459,,20,81,ATGTACAAACCTGGATTTTT,,
8135,N55459,,20,75,AAACCTGGATTTTTTTTTTA,,
8136,N55459,,20,69,GGATTTTTTTTTTATACCAC,,
8137,N55459,,20,63,TTTTTTTATACCACCTTGAC,,
8138,N55459,,20,57,TATACCACCTTGACCCATTT,,
8139,N55459,,20,51,ACCTTGACCCATTTGCTACA,,
8140,N55459,,20,45,ACCCATTTGCTACATTCCTT,,
8141,N55459,,20,39,TTGCTACATTCCTTTTCCTG,,
8142,N55459,,20,33,CATTCCTTTTCCTGTGAAAT,,
8143,N55459,,20,27,TTTTCCTGTGAAATATGTGA,,
8144,N55459,,20,21,TGTGAAATATGTGAGTGATA,,
8145,N55459,,20,15,ATATGTGAGTGATAATTAAA,,
8146,N55459,,20,9,GAGTGATAATTAAACACTTT,,
8147,N55459,,20,3,TAATTAAACACTTTAGACCT,,
(GENBANK ACCESSION NO. AA150500)
TTTGGCGTAGAGAAAATATAGAGCCACTTTACTATTAAAAATGTATTTTCCAAAAGCAAGGTAGTTGCTGTCCCAAAAAGCCGAAA
GCCTCTAGTCCCTGCGGAACGGGCTGGATGGGGCTTCAGTCTGACACAGCCAGGCGGGGCAGCCCTCGNCGNGCTCGGATTCTCTG
GGAGATTTGATAGAGCTCCATCGTTGCCCTCGCATCTTCCACCGAGCTGTGTCCAAGCAGGCTGTTCTGGATGCTCTTGTGCAGGAG
GCGCTCACTCAGCACCCGCAGAGAACACGCCTGCAGTGGTCCAGCTTGGCCTCACGCCACAACAGCCTGTCAGTGGACGTGTCGTA
GATTGTGTAGCCGCTCATGTCCTCTTTCAGTGCCTGGAAGTCGTGCTTCAGGTCATGACCCACCACCAGCTTGCCTTTCAGGAGCTGC
AGGATCTCTAGCCTGGCCACGGCAAATGGTGTGGCCCCCACCATGTGCTGAGGGGTGACCCGCTGAACCAGGTTCTG
(SEQ ID NO: 8148)

8149,AA150500,,20,491,CAGAACCTGGTTCAGCGGGT,,
8150,AA150500,,20,485,CTGGTTCAGCGGGTCACCCC,,
8151,AA150500,,20,479,CAGCGGGTCACCCCTCAGCA,,
8152,AA150500,,20,473,GTCACCCCTCAGCACATGGT,,
8153,AA150500,,20,467,CCTCAGCACATGGTGGGGGC,,
8154,AA150500,,20,461,CACATGGTGGGGGCCACACC,,
8155,AA150500,,20,455,GTGGGGGCCACACCATTTGC,,
8156,AA150500,,20,449,GCCACACCATTTGCCGTGGC,,
8157,AA150500,,20,443,CCATTTGCCGTGGCCAGGCT,,
8158,AA150500,,20,437,GCCGTGGCCAGGCTAGAGAT,,
8159,AA150500,,20,431,GCCAGGCTAGAGATCCTGCA,,
8160,AA150500,,20,425,CTAGAGATCCTGCAGCTCCT,,
8161,AA150500,,20,419,ATCCTGCAGCTCCTGAAAGG,,
8162,AA150500,,20,413,CAGCTCCTGAAAGGCAAGCT,,
8163,AA150500,,20,407,CTGAAAGGCAAGCTGGTGGT,,
8164,AA150500,,20,401,GGCAAGCTGGTGGTGGGTCA,,
8165,AA150500,,20,395,CTGGTGGTGGGTCATGACCT,,
8166,AA150500,,20,389,GTGGGTCATGACCTGAAGCA,,
8167,AA150500,,20,383,CATGACCTGAAGCACGACTT,,
8168,AA150500,,20,377,CTGAAGCACGACTTCCAGGC,,
8169,AA150500,,20,371,CACGACTTCCAGGCACTGAA,,
8170,AA150500,,20,365,TTCCAGGCACTGAAAGAGGA,,
8171,AA150500,,20,359,GCACTGAAAGAGGACATGAG,,
8172,AA150500,,20,353,AAAGAGGACATGAGCGGCTA,,
8173,AA150500,,20,347,GACATGAGCGGCTACACAAT,,
8174,AA150500,,20,341,AGCGGCTACACAATCTACGA,,
8175,AA150500,,20,335,TACACAATCTACGACACGTC,,
8176,AA150500,,20,329,ATCTACGACACGTCCACTGA,,
8177,AA150500,,20,323,GACACGTCCACTGACAGGCT,,
8178,AA150500,,20,317,TCCACTGACAGGCTGTTGTG,,

8179,AA150500,,20,311,GACAGGCTGTTGTGGCGTGA,,
8180,AA150500,,20,305,CTGTTGTGGCGTGAGGCCAA,,
8181,AA150500,,20,299,TGGCGTGAGGCCAAGCTGGA,,
8182,AA150500,,20,293,GAGGCCAAGCTGGACCACTG,,
8183,AA150500,,20,287,AAGCTGGACCACTGCAGGCG,,
8184,AA150500,,20,281,GACCACTGCAGGCGTGTTCT,,
8185,AA150500,,20,275,TGCAGGCGTGTTCTCTGCGG,,
8186,AA150500,,20,269,CGTGTTCTCTGCGGGTGCTG,,
8187,AA150500,,20,263,CTCTGCGGGTGCTGAGTGAG,,
8188,AA150500,,20,257,GGGTGCTGAGTGAGCGCCTC,,
8189,AA150500,,20,251,TGAGTGAGCGCCTCCTGCAC,,
8190,AA150500,,20,245,AGCGCCTCCTGCACAAGAGC,,
8191,AA150500,,20,239,TCCTGCACAAGAGCATCCAG,,
8192,AA150500,,20,233,ACAAGAGCATCCAGAACAGC,,
8193,AA150500,,20,227,GCATCCAGAACAGCCTGCTT,,
8194,AA150500,,20,221,AGAACAGCCTGCTTGGACAC,,
8195,AA150500,,20,215,GCCTGCTTGGACACAGCTCG,,
8196,AA150500,,20,209,TTGGACACAGCTCGGTGGAA,,
8197,AA150500,,20,203,ACAGCTCGGTGGAAGATGCG,,
8198,AA150500,,20,197,CGGTGGAAGATGCGAGGGCA,,
8199,AA150500,,20,191,AAGATGCGAGGGCAACGATG,,
8200,AA150500,,20,185,CGAGGGCAACGATGGAGCTC,,
8201,AA150500,,20,179,CAACGATGGAGCTCTATCAA,,
8202,AA150500,,20,173,TGGAGCTCTATCAAATCTCC,,
8203,AA150500,,20,167,TCTATCAAATCTCCCAGAGA,,
8204,AA150500,,20,161,AAATCTCCCAGAGAATCCGA,,
8205,AA150500,,20,155,CCCAGAGAATCCGAGCNCGN,,
8206,AA150500,,20,149,GAATCCGAGCNCGNCGAGGG,,
8207,AA150500,,20,143,GAGCNCGNCGAGGGCTGCCC,,
8208,AA150500,,20,137,GNCGAGGGCTGCCCCGCCTG,,
8209,AA150500,,20,131,GGCTGCCCCGCCTGGCTGTG,,
8210,AA150500,,20,125,CCCGCCTGGCTGTGTCAGAC,,
8211,AA150500,,20,119,TGGCTGTGTCAGACTGAAGC,,
8212,AA150500,,20,113,TGTCAGACTGAAGCCCCATC,,
8213,AA150500,,20,107,ACTGAAGCCCCATCCAGCCC,,
8214,AA150500,,20,101,GCCCCATCCAGCCCGTTCCG,,
8215,AA150500,,20,95,TCCAGCCCGTTCCGCAGGGA,,
8216,AA150500,,20,89,CCGTTCCGCAGGGACTAGAG,,
8217,AA150500,,20,83,CGCAGGGACTAGAGGCTTTC,,
8218,AA150500,,20,77,GACTAGAGGCTTTCGGCTTT,,
8219,AA150500,,20,71,AGGCTTTCGGCTTTTTGGGA,,
8220,AA150500,,20,65,TCGGCTTTTTGGGACAGCAA,,
8221,AA150500,,20,59,TTTTGGGACAGCAACTACCT,,
8222,AA150500,,20,53,GACAGCAACTACCTTGCTTT,,
8223,AA150500,,20,47,AACTACCTTGCTTTTGGAAA,,
8224,AA150500,,20,41,CTTGCTTTTGGAAAATACAT,,
8225,AA150500,,20,35,TTTGGAAAATACATTTTTAA,,
8226,AA150500,,20,29,AAATACATTTTTAATAGTAA,,
8227,AA150500,,20,23,ATTTTTAATAGTAAAGTGGC,,
8228,AA150500,,20,17,AATAGTAAAGTGGCTCTATA,,
8229,AA150500,,20,11,AAAGTGGCTCTATATTTTCT,,
8230,AA150500,,20,5,GCTCTATATTTTCTCTACGC,,
(GENBANK ACCESSION NO. H16833)
TTTTTTTTTAGGGGGCTATAGAAGGGATTGTGACATTTATTGTTCTGAAAATGCCATCAAAGACAGTTGTAAAGNCTAGTCTCATAC
ACACTTGGCAAGACATAGCCAAAAGAGGTAAATTTGAAATTAGAAAAAATATCAGCAGTTATTACCCAGAGCTTGAAATTCTGACC
TGTTACACAGTAGGATATTCAACCTCCATTTCAGCGTATTTAGGTACTTATTAGGTAGATTGCAAAATTACTAGAAAAAAAATTCCT
AGAGGACATCTTGAAAATGATAAAGTAGCAGGAAANTTACAAAGTTATAACTTNATTTACAAGNTCCCTA
(SEQ ID NO: 8231)

8232,H16833,,20,311,TAGGGANCTTGTAAATNAAG,,
8233,H16833,,20,305,NCTTGTAAATNAAGTTATAA,,
8234,H16833,,20,299,AAATNAAGTTATAACTTTGT,,
8235,H16833,,20,293,AGTTATAACTTTGTAANTTT,,
8236,H16833,,20,287,AACTTTGTAANTTTCCTGCT,,
8237,H16833,,20,281,GTAANTTTCCTGCTACTTTA,,
8238,H16833,,20,275,TTCCTGCTACTTTATCATTT,,
8239,H16833,,20,269,CTACTTTATCATTTTCAAGA,,
8240,H16833,,20,263,TATCATTTTCAAGATGTCCT,,
8241,H16833,,20,257,TTTCAAGATGTCCTCTAGGA,,
8242,H16833,,20,251,GATGTCCTCTAGGAATTTTT,,
8243,H16833,,20,245,CTCTAGGAATTTTTTTTCTA,,
8244,H16833,,20,239,GAATTTTTTTTCTAGTAATT,,
8245,H16833,,20,233,TTTTTCTAGTAATTTTGCAA,,
8246,H16833,,20,227,TAGTAATTTTGCAATCTACC,,
8247,H16833,,20,221,TTTTGCAATCTACCTAATAA,,

8248,H16833,,20,215,AATCTACCTAATAAGTACCT,,
8249,H16833,,20,209,CCTAATAAGTACCTAAATAC,,
8250,H16833,,20,203,AAGTACCTAAATACGCTGAA,,
8251,H16833,,20,197,CTAAATACGCTGAAATGGAG,,
8252,H16833,,20,191,ACGCTGAAATGGAGGTTGAA,,
8253,H16833,,20,185,AAATGGAGGTTGAATATCCT,,
8254,H16833,,20,179,AGGTTGAATATCCTACTGTG,,
8255,H16833,,20,173,AATATCCTACTGTGTAACAG,,
8256,H16833,,20,167,CTACTGTGTAACAGGTCAGA,,
8257,H16833,,20,161,TGTAACAGGTCAGAATTTCA,,
8258,H16833,,20,155,AGGTCAGAATTTCAAGCTCT,,
8259,H16833,,20,149,GAATTTCAAGCTCTGGGTAA,,
8260,H16833,,20,143,CAAGCTCTGGGTAATAACTG,,
8261,H16833,,20,137,CTGGGTAATAACTGCTGATA,,
8262,H16833,,20,131,AATAACTGCTGATATTTTTT,,
8263,H16833,,20,125,TGCTGATATTTTTTCTAATT,,
8264,H16833,,20,119,TATTTTTTCTAATTTCAAAT,,
8265,H16833,,20,113,TTCTAATTTCAAATTTACCT,,
8266,H16833,,20,107,TTTCAAATTTACCTCTTTTG,,
8267,H16833,,20,101,ATTTACCTCTTTTGGCTATG,,
8268,H16833,,20,95,CTCTTTTGGCTATGTCTTGC,,
8269,H16833,,20,89,TGGCTATGTCTTGCCAAGTG,,
8270,H16833,,20,83,TGTCTTGCCAAGTGTGTATG,,
8271,H16833,,20,77,GCCAAGTGTGTATGAGACTA,,
8272,H16833,,20,71,TGTGTATGAGACTAGNCTTT,,
8273,H16833,,20,65,TGAGACTAGNCTTTACAACT,,
8274,H16833,,20,59,TAGNCTTTACAACTGTCTTT,,
8275,H16833,,20,53,TTACAACTGTCTTTGATGGC,,
8276,H16833,,20,47,CTGTCTTTGATGGCATTTTC,,
8277,H16833,,20,41,TTGATGGCATTTTCAGAACA,,
8278,H16833,,20,35,GCATTTTCAGAACAATAAAT,,
8279,H16833,,20,29,TCAGAACAATAAATGTCACA,,
8280,H16833,,20,23,CAATAAATGTCACAATCCCT,,
8281,H16833,,20,17,ATGTCACAATCCCTTCTATA,,
8282,H16833,,20,11,CAATCCCTTCTATAGCCCCC,,
8283,H16833,,20,5,CTTCTATAGCCCCCTAAAAA,,
(GENBANK ACCESSION NO. AA644211)
TAGTACAAAAATAAACAGACATTTATTTCCAGACTTATCTTTTACATAAGTTAAATACACATTTGTCTGAGGCACTGAAACATTCGC
ATACACAACCCAAATTCCCAGGTTTTGTCAGCAGATCAATGTTAATAACAAATCAAGTTTTTTTTTTAAAAAAAACAGTGAACAGTG
TTTTATACAAGCATATTGACTATTTCTTTCTTAACCTTAAACATTCTAAACGTAAAATTGTAAAGAAGATTCTCCTGAGTTATCTTTA
ATGATATTTATTTCATTTTCTCCCTCTTCCCAAAAGAAAATTTTTTTCAATTATTTATATAAATACTATTATCTGTAATCAGCGTTTGA
TTTAAAAATATTAAAACCCACAGTGCTTGA
(SEQ ID NO: 8284)

8285,AA644211,,20,362,TCAAGCACTGTGGGTTTTAA,,
8286,AA644211,,20,356,ACTGTGGGTTTTAATATTTT,,
8287,AA644211,,20,350,GGTTTTAATATTTTTAAATC,,
8288,AA644211,,20,344,AATATTTTTAAATCAAACGC,,
8289,AA644211,,20,338,TTTAAATCAAACGCTGATTA,,
8290,AA644211,,20,332,TCAAACGCTGATTACAGATA,,
8291,AA644211,,20,326,GCTGATTACAGATAATAGTA,,
8292,AA644211,,20,320,TACAGATAATAGTATTTATA,,
8293,AA644211,,20,314,TAATAGTATTTATATAAATA,,
8294,AA644211,,20,308,TATTTATATAAATAATTGAA,,
8295,AA644211,,20,302,TATAAATAATTGAAAAAAAT,,
8296,AA644211,,20,296,TAATTGAAAAAAATTTTCTT,,
8297,AA644211,,20,290,AAAAAAATTTTCTTTTGGGA,,
8298,AA644211,,20,284,ATTTTCTTTTGGGAAGAGGG,,
8299,AA644211,,20,278,TTTTGGGAAGAGGGAGAAAA,,
8300,AA644211,,20,272,GAAGAGGGAGAAAATGAAAT,,
8301,AA644211,,20,266,GGAGAAAATGAAATAAATAT,,
8302,AA644211,,20,260,AATGAAATAAATATCATTAA,,
8303,AA644211,,20,254,ATAAATATCATTAAAGATAA,,
8304,AA644211,,20,248,ATCATTAAAGATAACTCAGG,,
8305,AA644211,,20,242,AAAGATAACTCAGGAGAATC,,
8306,AA644211,,20,236,AACTCAGGAGAATCTTCTTT,,
8307,AA644211,,20,230,GGAGAATCTTCTTTACAATT,,
8308,AA644211,,20,224,TCTTCTTTACAATTTTACGT,,
8309,AA644211,,20,218,TTACAATTTTACGTTTAGAA,,
8310,AA644211,,20,212,TTTTACGTTTAGAATGTTTA,,
8311,AA644211,,20,206,GTTTAGAATGTTTAAGGTTA,,
8312,AA644211,,20,200,AATGTTTAAGGTTAAGAAAG,,
8313,AA644211,,20,194,TAAGGTTAAGAAAGAAATAG,,
8314,AA644211,,20,188,TAAGAAAGAAATAGTCAATA,,
8315,AA644211,,20,182,AGAAATAGTCAATATGCTTG,,

8316,AA644211,,20,176,AGTCAATATGCTTGTATAAA,,
8317,AA644211,,20,170,TATGCTTGTATAAAACACTG,,
8318,AA644211,,20,164,TGTATAAAACACTGTTCACT,,
8319,AA644211,,20,158,AAACACTGTTCACTGTTTTT,,
8320,AA644211,,20,152,TGTTCACTGTTTTTTTTAAA,,
8321,AA644211,,20,146,CTGTTTTTTTTAAAAAAAAA,,
8322,AA644211,,20,140,TTTTTAAAAAAAAAACTTGA,,
8323,AA644211,,20,134,AAAAAAAAACTTGATTTGTT,,
8324,AA644211,,20,128,AAACTTGATTTGTTATTAAC,,
8325,AA644211,,20,122,GATTTGTTATTAACATTGAT,,
8326,AA644211,,20,116,TTATTAACATTGATCTGCTG,,
8327,AA644211,,20,110,ACATTGATCTGCTGACAAAA,,
8328,AA644211,,20,104,ATCTGCTGACAAAACCTGGG,,
8329,AA644211,,20,98,TGACAAAACCTGGGAATTTG,,
8330,AA644211,,20,92,AACCTGGGAATTTGGGTTGT,,
8331,AA644211,,20,86,GGAATTTGGGTTGTGTATGC,,
8332,AA644211,,20,80,TGGGTTGTGTATGCGAATGT,,
8333,AA644211,,20,74,GTGTATGCGAATGTTTCAGT,,
8334,AA644211,,20,68,GCGAATGTTTCAGTGCCTCA,,
8335,AA644211,,20,62,GTTTCAGTGCCTCAGACAAA,,
8336,AA644211,,20,56,GTGCCTCAGACAAATGTGTA,,
8337,AA644211,,20,50,CAGACAAATGTGTATTTAAC,,
8338,AA644211,,20,44,AATGTGTATTTAACTTATGT,,
8339,AA644211,,20,38,TATTTAACTTATGTAAAAGA,,
8340,AA644211,,20,32,ACTTATGTAAAAGATAAGTC,,
8341,AA644211,,20,26,GTAAAAGATAAGTCTGGAAA,,
8342,AA644211,,20,20,GATAAGTCTGGAAATAAATG,,
8343,AA644211,,20,14,TCTGGAAATAAATGTCTGTT,,
8344,AA644211,,20,8,AATAAATGTCTGTTTATTTT,,
8345,AA644211,,20,2,TGTCTGTTTATTTTTGTACT,,
(GENBANK ACCESSION NO. AA001432)
TTTTTTTTAAGGACTACACTGCATTTTTTAATTCCATAAATTATAATCCTTTAACATATATGAAAGTTTCATATTCTTAAAGTGCTTTA
AAATATATTTAATTTTTTTAACAAGTGGAAAAGAATGTTTCTTAAAAGACATTTAATTTTTTAGTGGAAATTAATATTACCAAAAACA
TTCTGTGCATAACAATTTGAATAACAATTTTTTTATCTTCAAGAAATGGGATTTTTATATAAAATACACATGTAGCACTGAATGCCAA
AGTGATGGGTATCCATGGTCAGAATTCAAAATTAGATTCGCTATTAAACCTGTCTGGTTTGTGTCCTGAGTGAAGAATGATCTCGAG
CCGGGGAGGGAGGTGCATTGGGTAATCAGTGCTTTTGAAGGTGAATTTCCTTGCTGTGAAATAGGCTTGGGTTACNGGGTCAGGAC
AACCATTCAGACTGACAGGCCCCTGGACTTCCAAGGCTTCAGTGACAGGGACAGGGATGTGATTGNCATGAATATTCCTCAGACAG
CCAAAGAATGATTTCCNCACAGGGATCCNCAGTGTCGTCAANTGGCNGGAGCACCTCA
(SEQ ID NO: 8346)

8347,AA001432,,20,563,TGAGGTGCTCCNGCCANTTG,,
8348,AA001432,,20,557,GCTCCNGCCANTTGACGACA,,
8349,AA001432,,20,551,GCCANTTGACGACACTGNGG,,
8350,AA001432,,20,545,TGACGACACTGNGGATCCCT,,
8351,AA001432,,20,539,CACTGNGGATCCCTGTGNGG,,
8352,AA001432,,20,533,GGATCCCTGTGNGGAAATCA,,
8353,AA001432,,20,527,CTGTGNGGAAATCATTCTTT,,
8354,AA001432,,20,521,GGAAATCATTCTTTGGCTGT,,
8355,AA001432,,20,515,CATTCTTTGGCTGTCTGAGG,,
8356,AA001432,,20,509,TTGGCTGTCTGAGGAATATT,,
8357,AA001432,,20,503,GTCTGAGGAATATTCATGNC,,
8358,AA001432,,20,497,GGAATATTCATGNCAATCAC,,
8359,AA001432,,20,491,TTCATGNCAATCACATCCCT,,
8360,AA001432,,20,485,NCAATCACATCCCTGTCCCT,,
8361,AA001432,,20,479,ACATCCCTGTCCCTGTCACT,,
8362,AA001432,,20,473,CTGTCCCTGTCACTGAAGCC,,
8363,AA001432,,20,467,CTGTCACTGAAGCCTTGGAA,,
8364,AA001432,,20,461,CTGAAGCCTTGGAAGTCCAG,,
8365,AA001432,,20,455,CCTTGGAAGTCCAGGGGCCT,,
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8367,AA001432,,20,443,AGGGGCCTGTCAGTCTGAAT,,
8368,AA001432,,20,437,CTGTCAGTCTGAATGGTTGT,,
8369,AA001432,,20,431,GTCTGAATGGTTGTCCTGAC,,
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8371,AA001432,,20,419,GTCCTGACCCNGTAACCCAA,,
8372,AA001432,,20,413,ACCCNGTAACCCAAGCCTAT,,
8373,AA001432,,20,407,TAACCCAAGCCTATTTCACA,,
8374,AA001432,,20,401,AAGCCTATTTCACAGCAAGG,,
8375,AA001432,,20,395,ATTTCACAGCAAGGAAATTC,,
8376,AA001432,,20,389,CAGCAAGGAAATTCACCTTC,,
8377,AA001432,,20,383,GGAAATTCACCTTCAAAAGC,,
8378,AA001432,,20,377,TCACCTTCAAAAGCACTGAT,,
8379,AA001432,,20,371,TCAAAAGCACTGATTACCCA,,
8380,AA001432,,20,365,GCACTGATTACCCAATGCAC,,
8381,AA001432,,20,359,ATTACCCAATGCACCTCCCT,,

8382,AA001432,,20,353,CAATGCACCTCCCTCCCCGG,,
8383,AA001432,,20,347,ACCTCCCTCCCCGGCTCGAG,,
8384,AA001432,,20,341,CTCCCCGGCTCGAGATCATT,,
8385,AA001432,,20,335,GGCTCGAGATCATTCTTCAC,,
8386,AA001432,,20,329,AGATCATTCTTCACTCAGGA,,
8387,AA001432,,20,323,TTCTTCACTCAGGACACAAA,,
8388,AA001432,,20,317,ACTCAGGACACAAACCAGAC,,
8389,AA001432,,20,311,GACACAAACCAGACAGGTTT,,
8390,AA001432,,20,305,AACCAGACAGGTTTAATAGC,,
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8393,AA001432,,20,287,GCGAATCTAATTTTGAATTC,,
8394,AA001432,,20,281,CTAATTTTGAATTCTGACCA,,
8395,AA001432,,20,275,TTGAATTCTGACCATGGATA,,
8396,AA001432,,20,269,TCTGACCATGGATACCCATC,,
8397,AA001432,,20,263,CATGGATACCCATCACTTTG,,
8398,AA001432,,20,257,TACCCATCACTTTGGCATTC,,
8399,AA001432,,20,251,TCACTTTGGCATTCAGTGCT,,
8400,AA001432,,20,245,TGGCATTCAGTGCTACATGT,,
8401,AA001432,,20,239,TCAGTGCTACATGTGTATTT,,
8402,AA001432,,20,233,CTACATGTGTATTTTATATA,,
8403,AA001432,,20,227,GTGTATTTTATATAAAAATC,,
8404,AA001432,,20,221,TTTATATAAAAATCCCATTT,,
8405,AA001432,,20,215,TAAAAATCCCATTTCTTGAA,,
8406,AA001432,,20,209,TCCCATTTCTTGAAGATAAA,,
8407,AA001432,,20,203,TTCTTGAAGATAAAAAAATT,,
8408,AA001432,,20,197,AAGATAAAAAAATTGTTATT,,
8409,AA001432,,20,191,AAAAAATTGTTATTCAAATT,,
8410,AA001432,,20,185,TTGTTATTCAAATTGTTATG,,
8411,AA001432,,20,179,TTCAAATTGTTATGCACAGA,,
8412,AA001432,,20,173,TTGTTATGCACAGAATGTTT,,
8413,AA001432,,20,167,TGCACAGAATGTTTTTGGTA,,
8414,AA001432,,20,161,GAATGTTTTTGGTAATATTA,,
8415,AA001432,,20,155,TTTTGGTAATATTAATTTCC,,
8416,AA001432,,20,149,TAATATTAATTTCCACTAAA,,
8417,AA001432,,20,143,TAATTTCCACTAAAAAATTA,,
8418,AA001432,,20,137,CCACTAAAAAATTAAATGTC,,
8419,AA001432,,20,131,AAAAATTAAATGTCTTTTAA,,
8420,AA001432,,20,125,TAAATGTCTTTTAAGAAACA,,
8421,AA001432,,20,119,TCTTTTAAGAAACATTCTTT,,
8422,AA001432,,20,113,AAGAAACATTCTTTTCCACT,,
8423,AA001432,,20,107,CATTCTTTTCCACTTGTTAA,,
8424,AA001432,,20,101,TTTCCACTTGTTAAAAAAAT,,
8425,AA001432,,20,95,CTTGTTAAAAAAATTAAATA,,
8426,AA001432,,20,89,AAAAAAATTAAATATATTTT,,
8427,AA001432,,20,83,ATTAAATATATTTTAAAGCA,,
8428,AA001432,,20,77,TATATTTTAAAGCACTTTAA,,
8429,AA001432,,20,71,TTAAAGCACTTTAAGAATAT,,
8430,AA001432,,20,65,CACTTTAAGAATATGAAACT,,
8431,AA001432,,20,59,AAGAATATGAAACTTTCATA,,
8432,AA001432,,20,53,ATGAAACTTTCATATATGTT,,
8433,AA001432,,20,47,CTTTCATATATGTTAAAGGA,,
8434,AA001432,,20,41,TATATGTTAAAGGATTATAA,,
8435,AA001432,,20,35,TTAAAGGATTATAATTTATG,,
8436,AA001432,,20,29,GATTATAATTTATGGAATTA,,
8437,AA001432,,20,23,AATTTATGGAATTAAAAAAT,,
8438,AA001432,,20,17,TGGAATTAAAAAATGCAGTG,,
8439,AA001432,,20,11,TAAAAAATGCAGTGTAGTCC,,
8440,AA001432,,20,5,ATGCAGTGTAGTCCTTAAAA,,
(GENBANK ACCESSION NO. H87536)
AGAAAAAAAAACTTCTTTAATGGGAAATTTTACGNTTGAAATGATGTTTCATCTTATNGNCCACAAACAAATGTTTTTNGACATTGA
AAAGNGGNTAAAGACCAACTGCGCCCAGTCCCCCAAGNGCCATTTTCTGNGTGCAGAATGGNGGGNGACGTCTTGAGCTGATGCTG
TGTCCCCAGCATCAGGGTTTTCTGTTTTCCCTCTTCTCCCTTTATTCCTTCCTTGTCCATTGCCCTCAACCTTCTTTTTCTGTTTGCTCT
GGCCTGGGGTCAGTATAACANATCCATGAACTCTAGNATGGGGNCTACGGGCAATCATAGNTACAATCAGGGCT
(SEQ ID NO: 8441)

8442,H87536,,20,318,AGCCCTGATTGTANCTATGA,,
8443,H87536,,20,312,GATTGTANCTATGATTGCCC,,
8444,H87536,,20,306,ANCTATGATTGCCCGTAGNC,,
8445,H87536,,20,300,GATTGCCCGTAGNCCCCATN,,
8446,H87536,,20,294,CCGTAGNCCCCATNCTAGAG,,
8447,H87536,,20,288,NCCCCATNCTAGAGTTCATG,,
8448,H87536,,20,282,TNCTAGAGTTCATGGATNTG,,
8449,H87536,,20,276,AGTTCATGGATNTGTTATAC,,
8450,H87536,,20,270,TGGATNTGTTATACTGACCC,,

8451,H87536,,20,264,TGTTATACTGACCCCAGGCC,,
8452,H87536,,20,258,ACTGACCCCAGGCCAGAGCA,,
8453,H87536,,20,252,CCCAGGCCAGAGCAAACAGA,,
8454,H87536,,20,246,CCAGAGCAAACAGAAAAAGA,,
8455,H87536,,20,240,CAAACAGAAAAAGAAGGTTG,,
8456,H87536,,20,234,GAAAAAGAAGGTTGAGGGCA,,
8457,H87536,,20,228,GAAGGTTGAGGGCAATGGAC,,
8458,H87536,,20,222,TGAGGGCAATGGACAAGGAA,,
8459,H87536,,20,216,CAATGGACAAGGAAGGAATA,,
8460,H87536,,20,210,ACAAGGAAGGAATAAAGGGA,,
8461,H87536,,20,204,AAGGAATAAAGGGAGAAGAG,,
8462,H87536,,20,198,TAAAGGGAGAAGAGGGAAAA,,
8463,H87536,,20,192,GAGAAGAGGGAAAACAGAAA,,
8464,H87536,,20,186,AGGGAAAACAGAAAACCCTG,,
8465,H87536,,20,180,AACAGAAAACCCTGATGCTG,,
8466,H87536,,20,174,AAACCCTGATGCTGGGGACA,,
8467,H87536,,20,168,TGATGCTGGGGACACAGCAT,,
8468,H87536,,20,162,TGGGGACACAGCATCAGCTC,,
8469,H87536,,20,156,CACAGCATCAGCTCAAGACG,,
8470,H87536,,20,150,ATCAGCTCAAGACGTCNCCC,,
8471,H87536,,20,144,TCAAGACGTCNCCCNCCATT,,
8472,H87536,,20,138,CGTCNCCCNCCATTCTGCAC,,
8473,H87536,,20,132,CCNCCATTCTGCACNCAGAA,,
8474,H87536,,20,126,TTCTGCACNCAGAAAATGGC,,
8475,H87536,,20,120,ACNCAGAAAATGGCNCTTGG,,
8476,H87536,,20,114,AAAATGGCNCTTGGGGGACT,,
8477,H87536,,20,108,GCNCTTGGGGGACTGGGCGC,,
8478,H87536,,20,102,GGGGGACTGGGCGCAGTTGG,,
8479,H87536,,20,96,CTGGGCGCAGTTGGTCTTTA,,
8480,H87536,,20,90,GCAGTTGGTCTTTANCCNCT,,
8481,H87536,,20,84,GGTCTTTANCCNCTTTTCAA,,
8482,H87536,,20,78,TANCCNCTTTTCAATGTCNA,,
8483,H87536,,20,72,CTTTTCAATGTCNAAAAACA,,
8484,H87536,,20,66,AATGTCNAAAAACATTTGTT,,
8485,H87536,,20,60,NAAAAACATTTGTTTGTGGN,,
8486,H87536,,20,54,CATTTGTTTGTGGNCNATAA,,
8487,H87536,,20,48,TTTGTGGNCNATAAGATGAA,,
8488,H87536,,20,42,GNCNATAAGATGAAACATCA,,
8489,H87536,,20,36,AAGATGAAACATCATTTCAA,,
8490,H87536,,20,30,AAACATCATTTCAANCGTAA,,
8491,H87536,,20,24,CATTTCAANCGTAAAATTTC,,
8492,H87536,,20,18,AANCGTAAAATTTCCCATTA,,
8493,H87536,,20,12,AAAATTTCCCATTAAAGAAG,,
8494,H87536,,20,6,TCCCATTAAAGAAGTTTTTT,,
(GENBANK ACCESSION NO. AA664179)
CCAATGAACTCTGAACTTTTTATTGGCCTCCTGCTCCCCAAAGGGTACCCTGCTTCTGCTGGCTTAATGCCTCAGAACTTTGGTGTCA
TTGGTCTCAGACACCACTTTGCCATCCACTATCCGGCGGGTGGTGGTCTTTTGGATGGTTTGCATGGAGTTGCTGCTGTCCAAGGCAT
CACCAAGATTAAAGTCCTCGCCATCTTCCAGCAGGCGGCGGTAGGTGGCGATCTCAGCCTCCAGCTTGACCTTGATGTTCAGCAGGG
CCTCATACTCCTGGGCCTGGCGCTGTCCCTCTGCCCGGGTCTGTGCCAGCTCTGACTCAAGGTGCAGCAGGATCCCGTTGAGCTGCT
CCATCTGTAGGGCGTACGGGCCTCCACCTCCCTCAGGCTGTTCTCCAAGCTGGCCTTCAGATTTCTCATGGAGTCCAGGTCGATCTCC
AGGACTGGACTGTACGTCTCAGCTCTGTGAGCGTCGTCTCAGCAGCTCAACCTCAGCAGACTGTGTGGTGACACTGTGGTGCTCTCC
TCATCTGCTGAGACCAGTACTTGTCTAGCTCCTCTCGGGTCTTCCGGAGCAGCTCGTCATATTGGCCCAGATGNCTGCAATGATCTG
GNCGAGGTCTGANGATTTGNGGCATCTACACTCAGGTCAACC
(SEQ ID NO: 8495)

8496,AA664179,,20,635,GGTTGACCTGAGTGTAGATG,,
8497,AA664179,,20,629,CCTGAGTGTAGATGCCNCAA,,
8498,AA664179,,20,623,TGTAGATGCCNCAAATCNTC,,
8499,AA664179,,20,617,TGCCNCAAATCNTCAGACCT,,
8500,AA664179,,20,611,AAATCNTCAGACCTCGNCCA,,
8501,AA664179,,20,605,TCAGACCTCGNCCAGATCAT,,
8502,AA664179,,20,599,CTCGNCCAGATCATTGCAGN,,
8503,AA664179,,20,593,CAGATCATTGCAGNCATCTG,,
8504,AA664179,,20,587,ATTGCAGNCATCTGGGCCAA,,
8505,AA664179,,20,581,GNCATCTGGGCCAATATGAC,,
8506,AA664179,,20,575,TGGGCCAATATGACGAGCTG,,
8507,AA664179,,20,569,AATATGACGAGCTGCTCCGG,,
8508,AA664179,,20,563,ACGAGCTGCTCCGGAAGACC,,
8509,AA664179,,20,557,TGCTCCGGAAGACCCGAGAG,,
8510,AA664179,,20,551,GGAAGACCCGAGAGGAGCTA,,
8511,AA664179,,20,545,CCCGAGAGGAGCTAGACAAG,,
8512,AA664179,,20,539,AGGAGCTAGACAAGTACTGG,,
8513,AA664179,,20,533,TAGACAAGTACTGGTCTCAG,,
8514,AA664179,,20,527,AGTACTGGTCTCAGCAGATG,,
8515,AA664179,,20,521,GGTCTCAGCAGATGAGGAGA,,

8516,AA664179,,20,515,AGCAGATGAGGAGAGCACCA,,
8517,AA664179,,20,509,TGAGGAGAGCACCACAGTGT,,
8518,AA664179,,20,503,GAGCACCACAGTGTCACCAC,,
8519,AA664179,,20,497,CACAGTGTCACCACACAGTC,,
8520,AA664179,,20,491,GTCACCACACAGTCTGCTGA,,
8521,AA664179,,20,485,ACACAGTCTGCTGAGGTTGA,,
8522,AA664179,,20,479,TCTGCTGAGGTTGAGCTGCT,,
8523,AA664179,,20,473,GAGGTTGAGCTGCTGAGACG,,
8524,AA664179,,20,467,GAGCTGCTGAGACGACGCTC,,
8525,AA664179,,20,461,CTGAGACGACGCTCACAGAG,,
8526,AA664179,,20,455,CGACGCTCACAGAGCTGAGA,,
8527,AA664179,,20,449,TCACAGAGCTGAGACGTACA,,
8528,AA664179,,20,443,AGCTGAGACGTACAGTCCAG,,
8529,AA664179,,20,437,GACGTACAGTCCAGTCCTGG,,
8530,AA664179,,20,431,CAGTCCAGTCCTGGAGATCG,,
8531,AA664179,,20,425,AGTCCTGGAGATCGACCTGG,,
8532,AA664179,,20,419,GGAGATCGACCTGGACTCCA,,
8533,AA664179,,20,413,CGACCTGGACTCCATGAGAA,,
8534,AA664179,,20,407,GGACTCCATGAGAAATCTGA,,
8535,AA664179,,20,401,CATGAGAAATCTGAAGGCCA,,
8536,AA664179,,20,395,AAATCTGAAGGCCAGCTTGG,,
8537,AA664179,,20,389,GAAGGCCAGCTTGGAGAACA,,
8538,AA664179,,20,383,CAGCTTGGAGAACAGCCTGA,,
8539,AA664179,,20,377,GGAGAACAGCCTGAGGGAGG,,
8540,AA664179,,20,371,CAGCCTGAGGGAGGTGGAGG,,
8541,AA664179,,20,365,GAGGGAGGTGGAGGCCCGTA,,
8542,AA664179,,20,359,GGTGGAGGCCCGTACGCCCT,,
8543,AA664179,,20,353,GGCCCGTACGCCCTACAGAT,,
8544,AA664179,,20,347,TACGCCCTACAGATGGAGCA,,
8545,AA664179,,20,341,CTACAGATGGAGCAGCTCAA,,
8546,AA664179,,20,335,ATGGAGCAGCTCAACGGGAT,,
8547,AA664179,,20,329,CAGCTCAACGGGATCCTGCT,,
8548,AA664179,,20,323,AACGGGATCCTGCTGCACCT,,
8549,AA664179,,20,317,ATCCTGCTGCACCTTGAGTC,,
8550,AA664179,,20,311,CTGCACCTTGAGTCAGAGCT,,
8551,AA664179,,20,305,CTTGAGTCAGAGCTGGCACA,,
8552,AA664179,,20,299,TCAGAGCTGGCACAGACCCG,,
8553,AA664179,,20,293,CTGGCACAGACCCGGGCAGA,,
8554,AA664179,,20,287,CAGACCCGGGCAGAGGGACA,,
8555,AA664179,,20,281,CGGGCAGAGGGACAGCGCCA,,
8556,AA664179,,20,275,GAGGGACAGCGCCAGGCCCA,,
8557,AA664179,,20,269,CAGCGCCAGGCCCAGGAGTA,,
8558,AA664179,,20,263,CAGGCCCAGGAGTATGAGGC,,
8559,AA664179,,20,257,CAGGAGTATGAGGCCCTGCT,,
8560,AA664179,,20,251,TATGAGGCCCTGCTGAACAT,,
8561,AA664179,,20,245,GCCCTGCTGAACATCAAGGT,,
8562,AA664179,,20,239,CTGAACATCAAGGTCAAGCT,,
8563,AA664179,,20,233,ATCAAGGTCAAGCTGGAGGC,,
8564,AA664179,,20,227,GTCAAGCTGGAGGCTGAGAT,,
8565,AA664179,,20,221,CTGGAGGCTGAGATCGCCAC,,
8566,AA664179,,20,215,GCTGAGATCGCCACCTACCG,,
8567,AA664179,,20,209,ATCGCCACCTACCGCCGCCT,,
8568,AA664179,,20,203,ACCTACCGCCGCCTGCTGGA,,
8569,AA664179,,20,197,CGCCGCCTGCTGGAAGATGG,,
8570,AA664179,,20,191,CTGCTGGAAGATGGCGAGGA,,
8571,AA664179,,20,185,GAAGATGGCGAGGACTTTAA,,
8572,AA664179,,20,179,GGCGAGGACTTTAATCTTGG,,
8573,AA664179,,20,173,GACTTTAATCTTGGTGATGC,,
8574,AA664179,,20,167,AATCTTGGTGATGCCTTGGA,,
8575,AA664179,,20,161,GGTGATGCCTTGGACAGCAG,,
8576,AA664179,,20,155,GCCTTGGACAGCAGCAACTC,,
8577,AA664179,,20,149,GACAGCAGCAACTCCATGCA,,
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8579,AA664179,,20,137,TCCATGCAAACCATCCAAAA,,
8580,AA664179,,20,131,CAAACCATCCAAAAGACCAC,,
8581,AA664179,,20,125,ATCCAAAAGACCACCACCCG,,
8582,AA664179,,20,119,AAGACCACCACCCGCCGGAT,,
8583,AA664179,,20,113,ACCACCCGCCGGATAGTGGA,,
8584,AA664179,,20,107,CGCCGGATAGTGGATGGCAA,,
8585,AA664179,,20,101,ATAGTGGATGGCAAAGTGGT,,
8586,AA664179,,20,95,GATGGCAAAGTGGTGTCTGA,,
8587,AA664179,,20,89,AAAGTGGTGTCTGAGACCAA,,
8588,AA664179,,20,83,GTGTCTGAGACCAATGACAC,,
8589,AA664179,,20,77,GAGACCAATGACACCAAAGT,,
8590,AA664179,,20,71,AATGACACCAAAGTTCTGAG,,

8591,AA664179,,20,65,ACCAAAGTTCTGAGGCATTA,,
8592,AA664179,,20,59,GTTCTGAGGCATTAAGCCAG,,
8593,AA664179,,20,53,AGGCATTAAGCCAGCAGAAG,,
8594,AA664179,,20,47,TAAGCCAGCAGAAGCAGGGT,,
8595,AA664179,,20,41,AGCAGAAGCAGGGTACCCTT,,
8596,AA664179,,20,35,AGCAGGGTACCCTTTGGGGA,,
8597,AA664179,,20,29,GTACCCTTTGGGGAGCAGGA,,
8598,AA664179,,20,23,TTTGGGGAGCAGGAGGCCAA,,
8599,AA664179,,20,17,GAGCAGGAGGCCAATAAAAA,,
8600,AA664179,,20,11,GAGGCCAATAAAAAGTTCAG,,
8601,AA664179,,20,5,AATAAAAAGTTCAGAGTTCA,,
(GENBANK ACCESSION NO. H86812)
ACGGCTTGGGCTGGTACCTCAGCCAGATGCCCTTCTCCTGGCCACACCAGCTCACAGTGGAGAAGACCCCCGCGTATTTCACGTCGC
CCAAAGTGCCTGAGCGAGTCTACAGCATGAACCCGTCCATCCGGCTGCTGCTCATCCTGCGAGACCCGTCGGAGCGCGTGCTATCTG
ACTACACCCAAGTGTTCTACAACCACATGCAGAAGCACAAGCCCTACCCGTCCATCGAGGAGTTCCTGGGTGCGNGATGGCAGGCT
CAATGTGGACTACAAGGCCCTCAACCGCAGCCTNTTACCACGTGCAACATGCAGAACTG
(SEQ ID NO: 8602)

8603,H86812,,20,300,CAGTTCTGCATGTTGCACGT,,
8604,H86812,,20,294,TGCATGTTGCACGTGGTAAN,,
8605,H86812,,20,288,TTGCACGTGGTAANAGGCTG,,
8606,H86812,,20,282,GTGGTAANAGGCTGCGGTTG,,
8607,H86812,,20,276,ANAGGCTGCGGTTGAGGGCC,,
8608,H86812,,20,270,TGCGGTTGAGGGCCTTGTAG,,
8609,H86812,,20,264,TGAGGGCCTTGTAGTCCACA,,
8610,H86812,,20,258,CCTTGTAGTCCACATTGAGC,,
8611,H86812,,20,252,AGTCCACATTGAGCCTGCCA,,
8612,H86812,,20,246,CATTGAGCCTGCCATCNCGC,,
8613,H86812,,20,240,GCCTGCCATCNCGCACCCAG,,
8614,H86812,,20,234,CATCNCGCACCCAGGAACTC,,
8615,H86812,,20,228,GCACCCAGGAACTCCTCGAT,,
8616,H86812,,20,222,AGGAACTCCTCGATGGACGG,,
8617,H86812,,20,216,TCCTCGATGGACGGGTAGGG,,
8618,H86812,,20,210,ATGGACGGGTAGGGCTTGTG,,
8619,H86812,,20,204,GGGTAGGGCTTGTGCTTCTG,,
8620,H86812,,20,198,GGCTTGTGCTTCTGCATGTG,,
8621,H86812,,20,192,TGCTTCTGCATGTGGTTGTA,,
8622,H86812,,20,186,TGCATGTGGTTGTAGAACAC,,
8623,H86812,,20,180,TGGTTGTAGAACACTTGGGT,,
8624,H86812,,20,174,TAGAACACTTGGGTGTAGTC,,
8625,H86812,,20,168,ACTTGGGTGTAGTCAGATAG,,
8626,H86812,,20,162,GTGTAGTCAGATAGCACGCG,,
8627,H86812,,20,156,TCAGATAGCACGCGCTCCGA,,
8628,H86812,,20,150,AGCACGCGCTCCGACGGGTC,,
8629,H86812,,20,144,CGCTCCGACGGGTCTCGCAG,,
8630,H86812,,20,138,GACGGGTCTCGCAGGATGAG,,
8631,H86812,,20,132,TCTCGCAGGATGAGCAGCAG,,
8632,H86812,,20,126,AGGATGAGCAGCAGCCGGAT,,
8633,H86812,,20,120,AGCAGCAGCCGGATGGACGG,,
8634,H86812,,20,114,AGCCGGATGGACGGGTTCAT,,
8635,H86812,,20,108,ATGGACGGGTTCATGCTGTA,,
8636,H86812,,20,102,GGGTTCATGCTGTAGACTCG,,
8637,H86812,,20,96,ATGCTGTAGACTCGCTCAGG,,
8638,H86812,,20,90,TAGACTCGCTCAGGCACTTT,,
8639,H86812,,20,84,CGCTCAGGCACTTTGGGCGA,,
8640,H86812,,20,78,GGCACTTTGGGCGACGTGAA,,
8641,H86812,,20,72,TTGGGCGACGTGAAATACGC,,
8642,H86812,,20,66,GACGTGAAATACGCGGGGGT,,
8643,H86812,,20,60,AAATACGCGGGGGTCTTCTC,,
8644,H86812,,20,54,GCGGGGGTCTTCTCCACTGT,,
8645,H86812,,20,48,GTCTTCTCCACTGTGAGCTG,,
8646,H86812,,20,42,TCCACTGTGAGCTGGTGTGG,,
8647,H86812,,20,36,GTGAGCTGGTGTGGCCAGGA,,
8648,H86812,,20,30,TGGTGTGGCCAGGAGAAGGG,,
8649,H86812,,20,24,GGCCAGGAGAAGGGCATCTG,,
8650,H86812,,20,18,GAGAAGGGCATCTGGCTGAG,,
8651,H86812,,20,12,GGCATCTGGCTGAGGTACCA,,
8652,H86812,,20,6,TGGCTGAGGTACCAGCCCAA,,
(GENBANK ACCESSION NO. AA626698)
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CCCCTCAGTATTCTTCGCCTTCTTCAGCCTCAGCTTCCACGGAATCCACGCCCACCTCTTCATAATCCTTCTCTAGAGCTGCCAGGTC
CTCGCGGGCCTCAGAGAACTCTCCCTCTTCCATGCCTTCGCCCACGTACCAGTGCACAAAGGCCCGCTTGGCATACATGAGATCGAA
CTTATGGTCCAGGCGGGCCCAGGCCTCCGCAATGGCCGTGGTGTTGCTCAGCATGCACACGGCCCGCTGCACCTTGGCCAGGTCTCC
CCCGGGGACCACTGTGGGGGGCTGGTAGTTAATGCCCACCTTAAATCCAGTCGGGCACCAATCCACAAACTGGATAGTGCGCTTGG
TCTTGATGGTGGCGATGGCGCGTTGACGTCTTTGGGGACCACGTCCCCCTGGTACAACATGCAGCAGGCCATGTACTTGCCGTGGCG

AGGGTCACACTTGACCATCTGATTGGCTGGCTCGAAGCAGGCATTGGTGATCTCGGCCAAAGAAAGCTGCTCGTGGTAAGCCTTCTA AGCTGAGATGATTGGGGCGTAAGTGTGCCATGGGAAATTGGATTCCGGGGTAACGGAACGAAGGTTGGGTCCGGAAATTC (SEQ ID NO: 8653)

8654,AA626698,,20,671,GAATTTCCGGACCCAACCTT,,
8655,AA626698,,20,665,CCGGACCCAACCTTCGTTCC,,
8656,AA626698,,20,659,CCAACCTTCGTTCCGTTACC,,
8657,AA626698,,20,653,TTCGTTCCGTTACCCCGGAA,,
8658,AA626698,,20,647,CCGTTACCCCGGAATCCAAT,,
8659,AA626698,,20,641,CCCCGGAATCCAATTTCCCC,,
8660,AA626698,,20,635,AATCCAATTTCCCCATGGCA,,
8661,AA626698,,20,629,ATTTCCCCATGGCACACTTA,,
8662,AA626698,,20,623,CCATGGCACACTTACGCCCC,,
8663,AA626698,,20,617,CACACTTACGCCCCAATCAT,,
8664,AA626698,,20,611,TACGCCCCAATCATCTCAGC,,
8665,AA626698,,20,605,CCAATCATCTCAGCTTAGAA,,
8666,AA626698,,20,599,ATCTCAGCTTAGAAGGCTTA,,
8667,AA626698,,20,593,GCTTAGAAGGCTTACCACGA,,
8668,AA626698,,20,587,AAGGCTTACCACGAGCAGCT,,
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8670,AA626698,,20,575,GAGCAGCTTTCTTTGGCCGA,,
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8672,AA626698,,20,563,TTGGCCGAGATCACCAATGC,,
8673,AA626698,,20,557,GAGATCACCAATGCCTGCTT,,
8674,AA626698,,20,551,ACCAATGCCTGCTTCGAGCC,,
8675,AA626698,,20,545,GCCTGCTTCGAGCCAGCCAA,,
8676,AA626698,,20,539,TTCGAGCCAGCCAATCAGAT,,
8677,AA626698,,20,533,CCAGCCAATCAGATGGTCAA,,
8678,AA626698,,20,527,AATCAGATGGTCAAGTGTGA,,
8679,AA626698,,20,521,ATGGTCAAGTGTGACCCTCG,,
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8681,AA626698,,20,509,GACCCTCGCCACGGCAAGTA,,
8682,AA626698,,20,503,CGCCACGGCAAGTACATGGC,,
8683,AA626698,,20,497,GGCAAGTACATGGCCTGCTG,,
8684,AA626698,,20,491,TACATGGCCTGCTGCATGTT,,
8685,AA626698,,20,485,GCCTGCTGCATGTTGTACCA,,
8686,AA626698,,20,479,TGCATGTTGTACCAGGGGGA,,
8687,AA626698,,20,473,TTGTACCAGGGGGACGTGGT,,
8688,AA626698,,20,467,CAGGGGGACGTGGTCCCCAA,,
8689,AA626698,,20,461,GACGTGGTCCCCAAAGACGT,,
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8691,AA626698,,20,449,AAAGACGTCAACGCGCCATC,,
8692,AA626698,,20,443,GTCAACGCGCCATCGCCACC,,
8693,AA626698,,20,437,GCGCCATCGCCACCATCAAG,,
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8695,AA626698,,20,425,CCATCAAGACCAAGCGCACT,,
8696,AA626698,,20,419,AGACCAAGCGCACTATCCAG,,
8697,AA626698,,20,413,AGCGCACTATCCAGTTTGTG,,
8698,AA626698,,20,407,CTATCCAGTTTGTGGATTGG,,
8699,AA626698,,20,401,AGTTTGTGGATTGGTGCCCG,,
8700,AA626698,,20,395,TGGATTGGTGCCCGACTGGA,,
8701,AA626698,,20,389,GGTGCCCGACTGGATTTAAG,,
8702,AA626698,,20,383,CGACTGGATTTAAGGTGGGC,,
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8709,AA626698,,20,341,TGGTCCCCGGGGGAGACCTG,,
8710,AA626698,,20,335,CCGGGGGAGACCTGGCCAAG,,
8711,AA626698,,20,329,GAGACCTGGCCAAGGTGCAG,,
8712,AA626698,,20,323,TGGCCAAGGTGCAGCGGGCC,,
8713,AA626698,,20,317,AGGTGCAGCGGGCCGTGTGC,,
8714,AA626698,,20,311,AGCGGGCCGTGTGCATGCTG,,
8715,AA626698,,20,305,CCGTGTGCATGCTGAGCAAC,,
8716,AA626698,,20,299,GCATGCTGAGCAACACCACG,,
8717,AA626698,,20,293,TGAGCAACACCACGGCCATT,,
8718,AA626698,,20,287,ACACCACGGCCATTGCGGAG,,
8719,AA626698,,20,281,CGGCCATTGCGGAGGCCTGG,,
8720,AA626698,,20,275,TTGCGGAGGCCTGGGCCCGC,,
8721,AA626698,,20,269,AGGCCTGGGCCCGCCTGGAC,,
8722,AA626698,,20,263,GGGCCCGCCTGGACCATAAG,,
8723,AA626698,,20,257,GCCTGGACCATAAGTTCGAT,,
8724,AA626698,,20,251,ACCATAAGTTCGATCTCATG,,

8725,AA626698,,20,245,AGTTCGATCTCATGTATGCC,,
8726,AA626698,,20,239,ATCTCATGTATGCCAAGCGG,,
8727,AA626698,,20,233,TGTATGCCAAGCGGGCCTTT,,
8728,AA626698,,20,227,CCAAGCGGGCCTTTGTGCAC,,
8729,AA626698,,20,221,GGGCCTTTGTGCACTGGTAC,,
8730,AA626698,,20,215,TTGTGCACTGGTACGTGGGC,,
8731,AA626698,,20,209,ACTGGTACGTGGGCGAAGGC,,
8732,AA626698,,20,203,ACGTGGGCGAAGGCATGGAA,,
8733,AA626698,,20,197,GCGAAGGCATGGAAGAGGGA,,
8734,AA626698,,20,191,GCATGGAAGAGGGAGAGTTC,,
8735,AA626698,,20,185,AAGAGGGAGAGTTCTCTGAG,,
8736,AA626698,,20,179,GAGAGTTCTCTGAGGCCCGC,,
8737,AA626698,,20,173,TCTCTGAGGCCCGCGAGGAC,,
8738,AA626698,,20,167,AGGCCCGCGAGGACCTGGCA,,
8739,AA626698,,20,161,GCGAGGACCTGGCAGCTCTA,,
8740,AA626698,,20,155,ACCTGGCAGCTCTAGAGAAG,,
8741,AA626698,,20,149,CAGCTCTAGAGAAGGATTAT,,
8742,AA626698,,20,143,TAGAGAAGGATTATGAAGAG,,
8743,AA626698,,20,137,AGGATTATGAAGAGGTGGGC,,
8744,AA626698,,20,131,ATGAAGAGGTGGGCGTGGAT,,
8745,AA626698,,20,125,AGGTGGGCGTGGATTCCGTG,,
8746,AA626698,,20,119,GCGTGGATTCCGTGGAAGCT,,
8747,AA626698,,20,113,ATTCCGTGGAAGCTGAGGCT,,
8748,AA626698,,20,107,TGGAAGCTGAGGCTGAAGAA,,
8749,AA626698,,20,101,CTGAGGCTGAAGAAGGCGAA,,
8750,AA626698,,20,95,CTGAAGAAGGCGAAGAATAC,,
8751,AA626698,,20,89,AAGGCGAAGAATACTGAGGG,,
8752,AA626698,,20,83,AAGAATACTGAGGGGAGGGT,,
8753,AA626698,,20,77,ACTGAGGGGAGGGTGTGGTG,,
8754,AA626698,,20,71,GGGAGGGTGTGGTGGGTTCT,,
8755,AA626698,,20,65,GTGTGGTGGGTTCTCCCCTG,,
8756,AA626698,,20,59,TGGGTTCTCCCCTGCCACCC,,
8757,AA626698,,20,53,CTCCCCTGCCACCCCCGGGA,,
8758,AA626698,,20,47,TGCCACCCCCGGGATGGCTG,,
8759,AA626698,,20,41,CCCCGGGATGGCTGCTTCCA,,
8760,AA626698,,20,35,GATGGCTGCTTCCAAGTTGT,,
8761,AA626698,,20,29,TGCTTCCAAGTTGTTTGCAA,,
8762,AA626698,,20,23,CAAGTTGTTTGCAATTAAAG,,
8763,AA626698,,20,17,GTTTGCAATTAAAGGTTCTG,,
8764,AA626698,,20,11,AATTAAAGGTTCTGTATAAA,,
8765,AA626698,,20,5,AGGTTCTGTATAAAACCAAA,,
(GENBANK ACCESSION NO. R37953)
TTTTTTTTTCCNTTTAAAGTCATCTCTATAGGAAGGTNCTGGGAGGGATCCCAGAGAAAGAAAGGGCCAAGACTCCATTAACTGCCC
TGGATGAAGGGACTGCTACAANAGCTAGTACCAGAGACTCTCCTATCTCACGGTTGAGGCAGACCCAGGNTAGAATAGAGAATAAA
AGGAATGCTTATAGGAAACAATTTTGTATGGAATGCTAGATGGCCAAGCTCAGCCTTTNGTCCAGTGCAACCCTTGCCTCGCTTGTC
AACAGTGAAAAATTAGTTTNGTTAGAAGAACCATCTGGAAACACACCAGCTTCTGCTACCTTCATGCTCATTGTTAAAAAAAGATTA
ACCAGTGTGAACATTCTGATCTGTTAATTCAGGGGACTNTTTTCTTTCCAATGGACTTTTTTGTTGGGAG
(SEQ ID NO: 8766)

8767,R37953,,20,398,CTCCCAACAAAAAAGTCCAT,,
8768,R37953,,20,392,ACAAAAAAGTCCATTGGAAA,,
8769,R37953,,20,386,AAGTCCATTGGAAAGAAAAN,,
8770,R37953,,20,380,ATTGGAAAGAAAANAGTCCC,,
8771,R37953,,20,374,AAGAAAANAGTCCCCTGAAT,,
8772,R37953,,20,368,ANAGTCCCCTGAATTAACAG,,
8773,R37953,,20,362,CCCTGAATTAACAGATCAGA,,
8774,R37953,,20,356,ATTAACAGATCAGAATGTTC,,
8775,R37953,,20,350,AGATCAGAATGTTCACACTG,,
8776,R37953,,20,344,GAATGTTCACACTGGTTAAT,,
8777,R37953,,20,338,TCACACTGGTTAATCTTTTT,,
8778,R37953,,20,332,TGGTTAATCTTTTTTTAACA,,
8779,R37953,,20,326,ATCTTTTTTTAACAATGAGC,,
8780,R37953,,20,320,TTTTAACAATGAGCATGAAG,,
8781,R37953,,20,314,CAATGAGCATGAAGGTAGCA,,
8782,R37953,,20,308,GCATGAAGGTAGCAGAAGCT,,
8783,R37953,,20,302,AGGTAGCAGAAGCTGGTGTG,,
8784,R37953,,20,296,CAGAAGCTGGTGTGTTTCCA,,
8785,R37953,,20,290,CTGGTGTGTTTCCAGATGGT,,
8786,R37953,,20,284,TGTTTCCAGATGGTTCTTCT,,
8787,R37953,,20,278,CAGATGGTTCTTCTAACNAA,,
8788,R37953,,20,272,GTTCTTCTAACNAAACTAAT,,
8789,R37953,,20,266,CTAACNAAACTAATTTTTCA,,
8790,R37953,,20,260,AAACTAATTTTTCACTGTTG,,
8791,R37953,,20,254,ATTTTTCACTGTTGACAAGC,,
8792,R37953,,20,248,CACTGTTGACAAGCGAGGCA,,

8793,R37953,,20,242,TGACAAGCGAGGCAAGGGTT,,
8794,R37953,,20,236,GCGAGGCAAGGGTTGCACTG,,
8795,R37953,,20,230,CAAGGGTTGCACTGGACNAA,,
8796,R37953,,20,224,TTGCACTGGACNAAAGGCTG,,
8797,R37953,,20,218,TGGACNAAAGGCTGAGCTTG,,
8798,R37953,,20,212,AAAGGCTGAGCTTGGCCATC,,
8799,R37953,,20,206,TGAGCTTGGCCATCTAGCAT,,
8800,R37953,,20,200,TGGCCATCTAGCATTCCATA,,
8801,R37953,,20,194,TCTAGCATTCCATACAAAAT,,
8802,R37953,,20,188,ATTCCATACAAAATTGTTTC,,
8803,R37953,,20,182,TACAAAATTGTTTCCTATAA,,
8804,R37953,,20,176,ATTGTTTCCTATAAGCATTC,,
8805,R37953,,20,170,TCCTATAAGCATTCCTTTTA,,
8806,R37953,,20,164,AAGCATTCCTTTTATTCTCT,,
8807,R37953,,20,158,TCCTTTTATTCTCTATTCTA,,
8808,R37953,,20,152,TATTCTCTATTCTANCCTGG,,
8809,R37953,,20,146,CTATTCTANCCTGGGTCTGC,,
8810,R37953,,20,140,TANCCTGGGTCTGCCTCAAC,,
8811,R37953,,20,134,GGGTCTGCCTCAACCGTGAG,,
8812,R37953,,20,128,GCCTCAACCGTGAGATAGGA,,
8813,R37953,,20,122,ACCGTGAGATAGGAGAGTCT,,
8814,R37953,,20,116,AGATAGGAGAGTCTCTGGTA,,
8815,R37953,,20,110,GAGAGTCTCTGGTACTAGCT,,
8816,R37953,,20,104,CTCTGGTACTAGCTNTTGTA,,
8817,R37953,,20,98,TACTAGCTNTTGTAGCAGTC,,
8818,R37953,,20,92,CTNTTGTAGCAGTCCCTTCA,,
8819,R37953,,20,86,TAGCAGTCCCTTCATCCAGG,,
8820,R37953,,20,80,TCCCTTCATCCAGGGCAGTT,,
8821,R37953,,20,74,CATCCAGGGCAGTTAATGGA,,
8822,R37953,,20,68,GGGCAGTTAATGGAGTCTTG,,
8823,R37953,,20,62,TTAATGGAGTCTTGGCCCTT,,
8824,R37953,,20,56,GAGTCTTGGCCCTTTCTTTC,,
8825,R37953,,20,50,TGGCCCTTTCTTTCTCTGGG,,
8826,R37953,,20,44,TTTCTTTCTCTGGGATCCCT,,
8827,R37953,,20,38,TCTCTGGGATCCCTCCCAGN,,
8828,R37953,,20,32,GGATCCCTCCCAGNACCTTC,,
8829,R37953,,20,26,CTCCCAGNACCTTCCTATAG,,
8830,R37953,,20,20,GNACCTTCCTATAGAGATGA,,
8831,R37953,,20,14,TCCTATAGAGATGACTTTAA,,
8832,R37953,,20,8,AGAGATGACTTTAAANGGAA,,
8833,R37953,,20,2,GACTTTAAANGGAAAAAAAA,,
(GENBANK ACCESSION NO. AA069372)
GGACTCTGCACCAAGGGACTGCCCTGTCCAGTGTCGAGAACTTTACTGCTAGGATTTCCAATTGTTAATAACGCTATGTTAGCGCGC
TCGAGGAAGAAGGTAGGAATCCCGGCTCCTTTTCTCNTCTTAGGTGGTTCGGTGTTTTGTTCGCTCCTCCAGGCGCGGCCCCTCTCGA
CCTCGCGCGCCCATNTTCGCCGCTGCGAATTCTCGGACAAAACTGTCAACAGCCCGGNCGCGCCTTTTNGCTCTNCGGGTCCCNCTA
ATTTATGCAAAGCCGACCTATGCTACAGCCCCCCAACCCCCGACCTTGGGGTAGGGAAGGAAGAGGGTGCCGGGGGAAGGGAATC
CGCNCTGTCCAGGCACTANAGGCTCCCTTGGACCGTTTTGGCAGATGAA
(SEQ ID NO: 8834)

8835,AA069372,,20,377,TTCATCTGCCAAAACGGTCC,,
8836,AA069372,,20,371,TGCCAAAACGGTCCAAGGGA,,
8837,AA069372,,20,365,AACGGTCCAAGGGAGCCTNT,,
8838,AA069372,,20,359,CCAAGGGAGCCTNTAGTGCC,,
8839,AA069372,,20,353,GAGCCTNTAGTGCCTGGACA,,
8840,AA069372,,20,347,NTAGTGCCTGGACAGNGCGG,,
8841,AA069372,,20,341,CCTGGACAGNGCGGATTCCC,,
8842,AA069372,,20,335,CAGNGCGGATTCCCTTCCCC,,
8843,AA069372,,20,329,GGATTCCCTTCCCCCGGCAC,,
8844,AA069372,,20,323,CCTTCCCCCGGCACCCTCTT,,
8845,AA069372,,20,317,CCCGGCACCCTCTTCCTTCC,,
8846,AA069372,,20,311,ACCCTCTTCCTTCCCTACCC,,
8847,AA069372,,20,305,TTCCTTCCCTACCCCAAGGT,,
8848,AA069372,,20,299,CCCTACCCCAAGGTCGGGGG,,
8849,AA069372,,20,293,CCCAAGGTCGGGGGTTGGGG,,
8850,AA069372,,20,287,GTCGGGGGTTGGGGGGCTGT,,
8851,AA069372,,20,281,GGTTGGGGGGCTGTAGCATA,,
8852,AA069372,,20,275,GGGGCTGTAGCATAGGTCGG,,
8853,AA069372,,20,269,GTAGCATAGGTCGGCTTTGC,,
8854,AA069372,,20,263,TAGGTCGGCTTTGCATAAAT,,
8855,AA069372,,20,257,GGCTTTGCATAAATTAGNGG,,
8856,AA069372,,20,251,GCATAAATTAGNGGGACCCG,,
8857,AA069372,,20,245,ATTAGNGGGACCCGNAGAGC,,
8858,AA069372,,20,239,GGGACCCGNAGAGCNAAAAG,,
8859,AA069372,,20,233,CGNAGAGCNAAAAGGCGCGN,,
8860,AA069372,,20,227,GCNAAAAGGCGCGNCCGGGC,,

8861,AA069372,,20,221,AGGCGCGNCCGGGCTGTTGA,,
8862,AA069372,,20,215,GNCCGGGCTGTTGACAGTTT,,
8863,AA069372,,20,209,GCTGTTGACAGTTTTGTCCG,,
8864,AA069372,,20,203,GACAGTTTTGTCCGAGAATT,,
8865,AA069372,,20,197,TTTGTCCGAGAATTCGCAGC,,
8866,AA069372,,20,191,CGAGAATTCGCAGCGGCGAA,,
8867,AA069372,,20,185,TTCGCAGCGGCGAANATGGG,,
8868,AA069372,,20,179,GCGGCGAANATGGGCGCGCG,,
8869,AA069372,,20,173,AANATGGGCGCGCGAGGTCG,,
8870,AA069372,,20,167,GGCGCGCGAGGTCGAGAGGG,,
8871,AA069372,,20,161,CGAGGTCGAGAGGGGCCGCG,,
8872,AA069372,,20,155,CGAGAGGGGCCGCGCCTGGA,,
8873,AA069372,,20,149,GGGCCGCGCCTGGAGGAGCG,,
8874,AA069372,,20,143,CGCCTGGAGGAGCGAACAAA,,
8875,AA069372,,20,137,GAGGAGCGAACAAAACACCG,,
8876,AA069372,,20,131,CGAACAAAACACCGAACCAC,,
8877,AA069372,,20,125,AAACACCGAACCACCTAAGA,,
8878,AA069372,,20,119,CGAACCACCTAAGANGAGAA,,
8879,AA069372,,20,113,ACCTAAGANGAGAAAAGGAG,,
8880,AA069372,,20,107,GANGAGAAAAGGAGCCGGGA,,
8881,AA069372,,20,101,AAAAGGAGCCGGGATTCCTA,,
8882,AA069372,,20,95,AGCCGGGATTCCTACCTTCT,,
8883,AA069372,,20,89,GATTCCTACCTTCTTCCTCG,,
8884,AA069372,,20,83,TACCTTCTTCCTCGAGCGCG,,
8885,AA069372,,20,77,CTTCCTCGAGCGCGCTAACA,,
8886,AA069372,,20,71,CGAGCGCGCTAACATAGCGT,,
8887,AA069372,,20,65,CGCTAACATAGCGTTATTAA,,
8888,AA069372,,20,59,CATAGCGTTATTAACAATTG,,
8889,AA069372,,20,53,GTTATTAACAATTGGAAATC,,
8890,AA069372,,20,47,AACAATTGGAAATCCTAGCA,,
8891,AA069372,,20,41,TGGAAATCCTAGCAGTAAAG,,
8892,AA069372,,20,35,TCCTAGCAGTAAAGTTCTCG,,
8893,AA069372,,20,29,CAGTAAAGTTCTCGACACTG,,
8894,AA069372,,20,23,AGTTCTCGACACTGGACAGG,,
8895,AA069372,,20,17,CGACACTGGACAGGGCAGTC,,
8896,AA069372,,20,11,TGGACAGGGCAGTCCCTTGG,,
8897,AA069372,,20,5,GGGCAGTCCCTTGGTGCAGA,,
(GENBANK ACCESSION NO. T74688)
NAGCNNNAAGTATTATTTCATTTTATTATTCCAAAGAATCAAGCCCATCATGAGTAGCCCACATGGTTGCTGTTCAAAGGTACTGAA
AAGGGAGGCATTTGGTCACCATTACCCATCAAGGAACTCTTTACAAGGATAGGTCCAAGTCCTTCGTGCTGCTCTTGGTCATTCAGT
GACTGCAGTTTTGGCCCAGAAGCCATCCAAGATGAGCAAGTGCTGAGCCATCCTTAACTCATACCTAGATGAAACAACTTGCGCAG
AAACGCTGGTCCTCCCCAGTAACCCCTTAGCATCATATTCCAATACAGGAAAGGCATCAGGTCAGCTTTCATGAGATACATGGGAA
AGGCGCTCTTTGCTTTGATCAAAGGGGAAGGTTTCTAGCGGCTCTGCTTTTGTAGGTCAAACTCAGGCAAGATTCACACGGTTGTAG
GCCGGTCANCAGTGGGACATGGATGTGTAGGCCATCATACTTCTTTGTTGGGGGTTTNGATTCTNCATAATTNCAGGAANTTGTCCT
ATCAAGGATTCCTGACT
(SEQ ID NO: 8898)

8899,T74688,,20,518,AGTCAGGAATCCTTGATAGG,,
8900,T74688,,20,512,GAATCCTTGATAGGACAANT,,
8901,T74688,,20,506,TTGATAGGACAANTTCCTGN,,
8902,T74688,,20,500,GGACAANTTCCTGNAATTAT,,
8903,T74688,,20,494,NTTCCTGNAATTATGNAGAA,,
8904,T74688,,20,488,GNAATTATGNAGAATCNAAA,,
8905,T74688,,20,482,ATGNAGAATCNAAACCCCCA,,
8906,T74688,,20,476,AATCNAAACCCCCAACAAAG,,
8907,T74688,,20,470,AACCCCCAACAAAGAAGTAT,,
8908,T74688,,20,464,CAACAAAGAAGTATGATGGC,,
8909,T74688,,20,458,AGAAGTATGATGGCCTACAC,,
8910,T74688,,20,452,ATGATGGCCTACACATCCAT,,
8911,T74688,,20,446,GCCTACACATCCATGTCCCA,,
8912,T74688,,20,440,ACATCCATGTCCCACTGNTG,,
8913,T74688,,20,434,ATGTCCCACTGNTGACCGGC,,
8914,T74688,,20,428,CACTGNTGACCGGCCTACAA,,
8915,T74688,,20,422,TGACCGGCCTACAACCGTGT,,
8916,T74688,,20,416,GCCTACAACCGTGTGAATCT,,
8917,T74688,,20,410,AACCGTGTGAATCTTGCCTG,,
8918,T74688,,20,404,GTGAATCTTGCCTGAGTTTG,,
8919,T74688,,20,398,CTTGCCTGAGTTTGACCTAC,,
8920,T74688,,20,392,TGAGTTTGACCTACAAAAGC,,
8921,T74688,,20,386,TGACCTACAAAAGCAGAGCC,,
8922,T74688,,20,380,ACAAAAGCAGAGCCGCTAGA,,
8923,T74688,,20,374,GCAGAGCCGCTAGAAACCTT,,
8924,T74688,,20,368,CCGCTAGAAACCTTCCCCTT,,
8925,T74688,,20,362,GAAACCTTCCCCTTTGATCA,,
8926,T74688,,20,356,TTCCCCTTTGATCAAAGCAA,,

8927,T74688,,20,350,TTTGATCAAAGCAAAGAGCG,,
8928,T74688,,20,344,CAAAGCAAAGAGCGCCTTTC,,
8929,T74688,,20,338,AAAGAGCGCCTTTCCCATGT,,
8930,T74688,,20,332,CGCCTTTCCCATGTATCTCA,,
8931,T74688,,20,326,TCCCATGTATCTCATGAAAG,,
8932,T74688,,20,320,GTATCTCATGAAAGCTGACC,,
8933,T74688,,20,314,CATGAAAGCTGACCTGATGC,,
8934,T74688,,20,308,AGCTGACCTGATGCCTTTCC,,
8935,T74688,,20,302,CCTGATGCCTTTCCTGTATT,,
8936,T74688,,20,296,GCCTTTCCTGTATTGGAATA,,
8937,T74688,,20,290,CCTGTATTGGAATATGATGC,,
8938,T74688,,20,284,TTGGAATATGATGCTAAGGG,,
8939,T74688,,20,278,TATGATGCTAAGGGGTTACT,,
8940,T74688,,20,272,GCTAAGGGGTTACTGGGGAG,,
8941,T74688,,20,266,GGGTTACTGGGGAGGACCAG,,
8942,T74688,,20,260,CTGGGGAGGACCAGCGTTTC,,
8943,T74688,,20,254,AGGACCAGCGTTTCTGCGCA,,
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8945,T74688,,20,242,TCTGCGCAAGTTGTTTCATC,,
8946,T74688,,20,236,CAAGTTGTTTCATCTAGGTA,,
8947,T74688,,20,230,GTTTCATCTAGGTATGAGTT,,
8948,T74688,,20,224,TCTAGGTATGAGTTAAGGAT,,
8949,T74688,,20,218,TATGAGTTAAGGATGGCTCA,,
8950,T74688,,20,212,TTAAGGATGGCTCAGCACTT,,
8951,T74688,,20,206,ATGGCTCAGCACTTGCTCAT,,
8952,T74688,,20,200,CAGCACTTGCTCATCTTGGA,,
8953,T74688,,20,194,TTGCTCATCTTGGATGGCTT,,
8954,T74688,,20,188,ATCTTGGATGGCTTCTGGGC,,
8955,T74688,,20,182,GATGGCTTCTGGGCCAAAAC,,
8956,T74688,,20,176,TTCTGGGCCAAAACTGCAGT,,
8957,T74688,,20,170,GCCAAAACTGCAGTCACTGA,,
8958,T74688,,20,164,ACTGCAGTCACTGAATGACC,,
8959,T74688,,20,158,GTCACTGAATGACCAAGAGC,,
8960,T74688,,20,152,GAATGACCAAGAGCAGCACG,,
8961,T74688,,20,146,CCAAGAGCAGCACGAAGGAC,,
8962,T74688,,20,140,GCAGCACGAAGGACTTGGAC,,
8963,T74688,,20,134,CGAAGGACTTGGACCTATCC,,
8964,T74688,,20,128,ACTTGGACCTATCCTTGTAA,,
8965,T74688,,20,122,ACCTATCCTTGTAAAGAGTT,,
8966,T74688,,20,116,CCTTGTAAAGAGTTCCTTGA,,
8967,T74688,,20,110,AAAGAGTTCCTTGATGGGTA,,
8968,T74688,,20,104,TTCCTTGATGGGTAATGGTG,,
8969,T74688,,20,98,GATGGGTAATGGTGACCAAA,,
8970,T74688,,20,92,TAATGGTGACCAAATGCCTC,,
8971,T74688,,20,86,TGACCAAATGCCTCCCTTTT,,
8972,T74688,,20,80,AATGCCTCCCTTTTCAGTAC,,
8973,T74688,,20,74,TCCCTTTTCAGTACCTTTGA,,
8974,T74688,,20,68,TTCAGTACCTTTGAACAGCA,,
8975,T74688,,20,62,ACCTTTGAACAGCAACCATG,,
8976,T74688,,20,56,GAACAGCAACCATGTGGGCT,,
8977,T74688,,20,50,CAACCATGTGGGCTACTCAT,,
8978,T74688,,20,44,TGTGGGCTACTCATGATGGG,,
8979,T74688,,20,38,CTACTCATGATGGGCTTGAT,,
8980,T74688,,20,32,ATGATGGGCTTGATTCTTTG,,
8981,T74688,,20,26,GGCTTGATTCTTTGGAATAA,,
8982,T74688,,20,20,ATTCTTTGGAATAATAAAAT,,
8983,T74688,,20,14,TGGAATAATAAAATGAAATA,,
8984,T74688,,20,8,AATAAAATGAAATAATACTT,,
8985,T74688,,20,2,ATGAAATAATACTTNNNGCT,,
(GENBANK ACCESSION NO. AA187351)
ATCTTCCCCATCGAGTACCATGATATCTGGCAGATGTATAAGAAGGCAGAGGCTTCCTTTTGGACCGCCGAGGAGGTGGACCTCTCC
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ATAGTAAATGAAAACTTGGTGGAGCGATTTAGCCAAGAAGTTCAGATTACAGAAGCCCGCTGTTTCTATGGCTTCCAAATTGCCATG
GAAAACATACATTCTGAAATGTATAGTCTTCTTATTGACACTTACATAAAAGNTCCCAAAGAAAGGGAATTTCTCTTCAATGCCATT
GNAACGNTGCCTTGTGTCAAGAAGAAGGCAGACTGGGCCTTGCGCTGGATTGGGGACAAAGAGGCTACCTATGGTGAACGTGTTGT
AGC
(SEQ ID NO: 8986)

8987,AA187351,,20,418,GCTACAACACGTTCACCATA,,
8988,AA187351,,20,412,ACACGTTCACCATAGGTAGC,,
8989,AA187351,,20,406,TCACCATAGGTAGCCTCTTT,,
8990,AA187351,,20,400,TAGGTAGCCTCTTTGTCCCC,,
8991,AA187351,,20,394,GCCTCTTTGTCCCCAATCCA,,
8992,AA187351,,20,388,TTGTCCCCAATCCAGCGCAA,,
8993,AA187351,,20,382,CCAATCCAGCGCAAGGCCCA,,

8994,AA187351,,20,376,CAGCGCAAGGCCCAGTCTGC,,
8995,AA187351,,20,370,AAGGCCCAGTCTGCCTTCTT,,
8996,AA187351,,20,364,CAGTCTGCCTTCTTCTTGAC,,
8997,AA187351,,20,358,GCCTTCTTCTTGACACAAGG,,
8998,AA187351,,20,352,TTCTTGACACAAGGCANCGT,,
8999,AA187351,,20,346,ACACAAGGCANCGTTNCAAT,,
9000,AA187351,,20,340,GGCANCGTTNCAATGGCATT,,
9001,AA187351,,20,334,GTTNCAATGGCATTGAAGAG,,
9002,AA187351,,20,328,ATGGCATTGAAGAGAAATTC,,
9003,AA187351,,20,322,TTGAAGAGAAATTCCCTTTC,,
9004,AA187351,,20,316,AGAAATTCCCTTTCTTTGGG,,
9005,AA187351,,20,310,TCCCTTTCTTTGGGANCTTT,,
9006,AA187351,,20,304,TCTTTGGGANCTTTTATGTA,,
9007,AA187351,,20,298,GGANCTTTTATGTAAGTGTC,,
9008,AA187351,,20,292,TTTATGTAAGTGTCAATAAG,,
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9010,AA187351,,20,280,TCAATAAGAAGACTATACAT,,
9011,AA187351,,20,274,AGAAGACTATACATTTCAGA,,
9012,AA187351,,20,268,CTATACATTTCAGAATGTAT,,
9013,AA187351,,20,262,ATTTCAGAATGTATGTTTTC,,
9014,AA187351,,20,256,GAATGTATGTTTTCCATGGC,,
9015,AA187351,,20,250,ATGTTTTCCATGGCAATTTG,,
9016,AA187351,,20,244,TCCATGGCAATTTGGAAGCC,,
9017,AA187351,,20,238,GCAATTTGGAAGCCATAGAA,,
9018,AA187351,,20,232,TGGAAGCCATAGAAACAGCG,,
9019,AA187351,,20,226,CCATAGAAACAGCGGGCTTC,,
9020,AA187351,,20,220,AAACAGCGGGCTTCTGTAAT,,
9021,AA187351,,20,214,CGGGCTTCTGTAATCTGAAC,,
9022,AA187351,,20,208,TCTGTAATCTGAACTTCTTG,,
9023,AA187351,,20,202,ATCTGAACTTCTTGGCTAAA,,
9024,AA187351,,20,196,ACTTCTTGGCTAAATCGCTC,,
9025,AA187351,,20,190,TGGCTAAATCGCTCCACCAA,,
9026,AA187351,,20,184,AATCGCTCCACCAAGTTTTC,,
9027,AA187351,,20,178,TCCACCAAGTTTTCATTTAC,,
9028,AA187351,,20,172,AAGTTTTCATTTACTATGCC,,
9029,AA187351,,20,166,TCATTTACTATGCCATCGCT,,
9030,AA187351,,20,160,ACTATGCCATCGCTTGCTGC,,
9031,AA187351,,20,154,CCATCGCTTGCTGCAAAGAA,,
9032,AA187351,,20,148,CTTGCTGCAAAGAAAGCCAG,,
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9034,AA187351,,20,136,AAAGCCAGAACATGGGATAT,,
9035,AA187351,,20,130,AGAACATGGGATATAAAATA,,
9036,AA187351,,20,124,TGGGATATAAAATATCTCTC,,
9037,AA187351,,20,118,ATAAAATATCTCTCCTCGGG,,
9038,AA187351,,20,112,TATCTCTCCTCGGGTTTCAG,,
9039,AA187351,,20,106,TCCTCGGGTTTCAGGGATTC,,
9040,AA187351,,20,100,GGTTTCAGGGATTCCCAGTG,,
9041,AA187351,,20,94,AGGGATTCCCAGTGCTGAAT,,
9042,AA187351,,20,88,TCCCAGTGCTGAATGTCCTT,,
9043,AA187351,,20,82,TGCTGAATGTCCTTGGAGAG,,
9044,AA187351,,20,76,ATGTCCTTGGAGAGGTCCAC,,
9045,AA187351,,20,70,TTGGAGAGGTCCACCTCCTC,,
9046,AA187351,,20,64,AGGTCCACCTCCTCGGCGGT,,
9047,AA187351,,20,58,ACCTCCTCGGCGGTCCAAAA,,
9048,AA187351,,20,52,TCGGCGGTCCAAAAGGAAGC,,
9049,AA187351,,20,46,GTCCAAAAGGAAGCCTCTGC,,
9050,AA187351,,20,40,AAGGAAGCCTCTGCCTTCTT,,
9051,AA187351,,20,34,GCCTCTGCCTTCTTATACAT,,
9052,AA187351,,20,28,GCCTTCTTATACATCTGCCA,,
9053,AA187351,,20,22,TTATACATCTGCCAGATATC,,
9054,AA187351,,20,16,ATCTGCCAGATATCATGGTA,,
9055,AA187351,,20,10,CAGATATCATGGTACTCGAT,,
9056,AA187351,,20,4,TCATGGTACTCGATGGGGAA,,
(GENBANK ACCESSION NO. AA677534)
GTAAGTTTAAATTTATTTTTTAAAAATGCTTGTCTTCCTCACTAGACAATCAACTCTATGAGGGCAGAGACTATGTCACCACTGTCCC
ACCAGCACCTGGCACACAGTAGGTACTCAATAAATATATGTTGGAAGGATGGATGGAGGTAATGGATGGAAAGATGGATGGAAGG
ATGAATGGAGGGATGGATGTGACCCAGCTGAAGTGTGAGTAGGAACATTCTCTTATTATGGGTGGAGGAAAGAGAGAGGAGATTGA
GAAAATAAGATAAAATACATTGATGCGCATCATTTTTGGTGTTCGAAAAGTAGGATTGAATTAGGACTAATAAATCTAGAGAATTTT
ACCTCTTTCAATGCCCAAGCCACACTTTTCTATCACTTTGAAACCGAAAAAGTAAATACTTTCCCAACATTTGCTTTGCTGGTAGGAA
ATGCTTTAATAAAAATGCAATCTCTAAGTTGCCATGG
(SEQ ID NO: 9057)

9058,AA677534,,20,452,CCATGGCAACTTAGAGATTG,,
9059,AA677534,,20,446,CAACTTAGAGATTGCATTTT,,
9060,AA677534,,20,440,AGAGATTGCATTTTTATTAA,,

9061,AA677534,,20,434,TGCATTTTTATTAAAGCATT,,
9062,AA677534,,20,428,TTTATTAAAGCATTTCCTAC,,
9063,AA677534,,20,422,AAAGCATTTCCTACCAGCAA,,
9064,AA677534,,20,416,TTTCCTACCAGCAAAGCAAA,,
9065,AA677534,,20,410,ACCAGCAAAGCAAATGTTGG,,
9066,AA677534,,20,404,AAAGCAAATGTTGGGAAAGT,,
9067,AA677534,,20,398,AATGTTGGGAAAGTATTTAC,,
9068,AA677534,,20,392,GGGAAAGTATTTACTTTTTC,,
9069,AA677534,,20,386,GTATTTACTTTTTCGGTTTC,,
9070,AA677534,,20,380,ACTTTTTCGGTTTCAAAGTG,,
9071,AA677534,,20,374,TCGGTTTCAAAGTGATAGAA,,
9072,AA677534,,20,368,TCAAAGTGATAGAAAAGTGT,,
9073,AA677534,,20,362,TGATAGAAAAGTGTGGCTTG,,
9074,AA677534,,20,356,AAAAGTGTGGCTTGGGCATT,,
9075,AA677534,,20,350,GTGGCTTGGGCATTGAAAGA,,
9076,AA677534,,20,344,TGGGCATTGAAAGAGGTAAA,,
9077,AA677534,,20,338,TTGAAAGAGGTAAAATTCTC,,
9078,AA677534,,20,332,GAGGTAAAATTCTCTAGATT,,
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9081,AA677534,,20,314,TTTATTAGTCCTAATTCAAT,,
9082,AA677534,,20,308,AGTCCTAATTCAATCCTACT,,
9083,AA677534,,20,302,AATTCAATCCTACTTTTCGA,,
9084,AA677534,,20,296,ATCCTACTTTTCGAACACCA,,
9085,AA677534,,20,290,CTTTTCGAACACCAAAAATG,,
9086,AA677534,,20,284,GAACACCAAAAATGATGCGC,,
9087,AA677534,,20,278,CAAAAATGATGCGCATCAAT,,
9088,AA677534,,20,272,TGATGCGCATCAATGTATTT,,
9089,AA677534,,20,266,GCATCAATGTATTTTATCTT,,
9090,AA677534,,20,260,ATGTATTTTATCTTATTTTC,,
9091,AA677534,,20,254,TTTATCTTATTTTCTCAATC,,
9092,AA677534,,20,248,TTATTTTCTCAATCTCCTCT,,
9093,AA677534,,20,242,TCTCAATCTCCTCTCTCTTT,,
9094,AA677534,,20,236,TCTCCTCTCTCTTTCCTCCA,,
9095,AA677534,,20,230,CTCTCTTTCCTCCACCCATA,,
9096,AA677534,,20,224,TTCCTCCACCCATAATAAGA,,
9097,AA677534,,20,218,CACCCATAATAAGAGAATGT,,
9098,AA677534,,20,212,TAATAAGAGAATGTTCCTAC,,
9099,AA677534,,20,206,GAGAATGTTCCTACTCACAC,,
9100,AA677534,,20,200,GTTCCTACTCACACTTCAGC,,
9101,AA677534,,20,194,ACTCACACTTCAGCTGGGTC,,
9102,AA677534,,20,188,ACTTCAGCTGGGTCACATCC,,
9103,AA677534,,20,182,GCTGGGTCACATCCATCCCT,,
9104,AA677534,,20,176,TCACATCCATCCCTCCATTC,,
9105,AA677534,,20,170,CCATCCCTCCATTCATCCTT,,
9106,AA677534,,20,164,CTCCATTCATCCTTCCATCC,,
9107,AA677534,,20,158,TCATCCTTCCATCCATCTTT,,
9108,AA677534,,20,152,TTCCATCCATCTTTCCATCC,,
9109,AA677534,,20,146,CCATCTTTCCATCCATTACC,,
9110,AA677534,,20,140,TTCCATCCATTACCTCCATC,,
9111,AA677534,,20,134,CCATTACCTCCATCCATCCT,,
9112,AA677534,,20,128,CCTCCATCCATCCTTCCAAC,,
9113,AA677534,,20,122,TCCATCCTTCCAACATATAT,,
9114,AA677534,,20,116,CTTCCAACATATATTTATTG,,
9115,AA677534,,20,110,ACATATATTTATTGAGTACC,,
9116,AA677534,,20,104,ATTTATTGAGTACCTACTGT,,
9117,AA677534,,20,98,TGAGTACCTACTGTGTGCCA,,
9118,AA677534,,20,92,CCTACTGTGTGCCAGGTGCT,,
9119,AA677534,,20,86,GTGTGCCAGGTGCTGGTGGG,,
9120,AA677534,,20,80,CAGGTGCTGGTGGGACAGTG,,
9121,AA677534,,20,74,CTGGTGGGACAGTGGTGACA,,
9122,AA677534,,20,68,GGACAGTGGTGACATAGTCT,,
9123,AA677534,,20,62,TGGTGACATAGTCTCTGCCC,,
9124,AA677534,,20,56,CATAGTCTCTGCCCTCATAG,,
9125,AA677534,,20,50,CTCTGCCCTCATAGAGTTGA,,
9126,AA677534,,20,44,CCTCATAGAGTTGATTGTCT,,
9127,AA677534,,20,38,AGAGTTGATTGTCTAGTGAG,,
9128,AA677534,,20,32,GATTGTCTAGTGAGGAAGAC,,
9129,AA677534,,20,26,CTAGTGAGGAAGACAAGCAT,,
9130,AA677534,,20,20,AGGAAGACAAGCATTTTTAA,,
9131,AA677534,,20,14,ACAAGCATTTTTAAAAAATA,,
9132,AA677534,,20,8,ATTTTTAAAAAATAAATTTA,,
9133,AA677534,,20,2,AAAAAATAAATTTAAACTTA,,
(GENBANK ACCESSION NO. T59658)

TCATAGGTAAAATTTTTATTTATGAATGTGTGGACACATGACTTTGGATCCAGCCAGCCAGTGACATAAATAAACTTGAGCAAAAGT
TTCAAGCTAGAGGATATATATGTATAGAAAATTATATATTTGTGTGTGTGTGTAAGGCCTCTTGGAACAGTGCCACAAACCTGGACA
CCAACCAACAGAATACTCCCGTCCTTTGAAATTTCCATTAAGAGCACAATGGGGGTAATTATACCAGGGATGCTCCAATCGCTCTTT
CCATCTTGTGCACTCACATGCCCGCCAAACATGGAAATGTTCGCCTTCTCCCTTCCAATGTGATGGGTTGTTGGAACTTATCTTTAGG
TGGTCATTTGATAGGCCTTTGTGCTCACAGNGGAGGACATCCCACTGNACCCAGCCACTGGGTCATTGTCTATACCAGTTCACATNC
AAGGCAGGGCGCACTTTGTCAGGGTTTCCACTCGGAATATCCATTTCGGCATCTGGAGGTACAGTATCGNAGGTGACTAGGATCATT
TGAGGCTTTTTTCTTT
(SEQ ID NO: 9134)

9135,T59658,,20,520,AAAGAAAAAAGCCTCAAATG,,
9136,T59658,,20,514,AAAAGCCTCAAATGATCCTA,,
9137,T59658,,20,508,CTCAAATGATCCTAGTCACC,,
9138,T59658,,20,502,TGATCCTAGTCACCTNCGAT,,
9139,T59658,,20,496,TAGTCACCTNCGATACTGTA,,
9140,T59658,,20,490,CCTNCGATACTGTACCTCCA,,
9141,T59658,,20,484,ATACTGTACCTCCAGATGCC,,
9142,T59658,,20,478,TACCTCCAGATGCCGAAATG,,
9143,T59658,,20,472,CAGATGCCGAAATGGATATT,,
9144,T59658,,20,466,CCGAAATGGATATTCCGAGT,,
9145,T59658,,20,460,TGGATATTCCGAGTGGAAAC,,
9146,T59658,,20,454,TTCCGAGTGGAAACCCTGAC,,
9147,T59658,,20,448,GTGGAAACCCTGACAAAGTG,,
9148,T59658,,20,442,ACCCTGACAAAGTGCGCCCT,,
9149,T59658,,20,436,ACAAAGTGCGCCCTGCCTTG,,
9150,T59658,,20,430,TGCGCCCTGCCTTGNATGTG,,
9151,T59658,,20,424,CTGCCTTGNATGTGAACTGG,,
9152,T59658,,20,418,TGNATGTGAACTGGTATAGA,,
9153,T59658,,20,412,TGAACTGGTATAGACAATGA,,
9154,T59658,,20,406,GGTATAGACAATGACCCAGT,,
9155,T59658,,20,400,GACAATGACCCAGTGGCTGG,,
9156,T59658,,20,394,GACCCAGTGGCTGGGTNCAG,,
9157,T59658,,20,388,GTGGCTGGGTNCAGTGGGAT,,
9158,T59658,,20,382,GGGTNCAGTGGGATGTCCTC,,
9159,T59658,,20,376,AGTGGGATGTCCTCCNCTGT,,
9160,T59658,,20,370,ATGTCCTCCNCTGTGAGCAC,,
9161,T59658,,20,364,TCCNCTGTGAGCACAAAGGC,,
9162,T59658,,20,358,GTGAGCACAAAGGCCTATCA,,
9163,T59658,,20,352,ACAAAGGCCTATCAAATGAC,,
9164,T59658,,20,346,GCCTATCAAATGACCACCTA,,
9165,T59658,,20,340,CAAATGACCACCTAAAGATA,,
9166,T59658,,20,334,ACCACCTAAAGATAAGTTCC,,
9167,T59658,,20,328,TAAAGATAAGTTCCAACAAC,,
9168,T59658,,20,322,TAAGTTCCAACAACCCATCA,,
9169,T59658,,20,316,CCAACAACCCATCACATTGG,,
9170,T59658,,20,310,ACCCATCACATTGGAAGGGA,,
9171,T59658,,20,304,CACATTGGAAGGGAGAAGGC,,
9172,T59658,,20,298,GGAAGGGAGAAGGCGAACAT,,
9173,T59658,,20,292,GAGAAGGCGAACATTTCCAT,,
9174,T59658,,20,286,GCGAACATTTCCATGTTTGG,,
9175,T59658,,20,280,ATTTCCATGTTTGGCGGGCA,,
9176,T59658,,20,274,ATGTTTGGCGGGCATGTGAG,,
9177,T59658,,20,268,GGCGGGCATGTGAGTGCACA,,
9178,T59658,,20,262,CATGTGAGTGCACAAGATGG,,
9179,T59658,,20,256,AGTGCACAAGATGGAAAGAG,,
9180,T59658,,20,250,CAAGATGGAAAGAGCGATTG,,
9181,T59658,,20,244,GGAAAGAGCGATTGGAGCAT,,
9182,T59658,,20,238,AGCGATTGGAGCATCCCTGG,,
9183,T59658,,20,232,TGGAGCATCCCTGGTATAAT,,
9184,T59658,,20,226,ATCCCTGGTATAATTACCCC,,
9185,T59658,,20,220,GGTATAATTACCCCCATTGT,,
9186,T59658,,20,214,ATTACCCCCATTGTGCTCTT,,
9187,T59658,,20,208,CCCATTGTGCTCTTAATGGA,,
9188,T59658,,20,202,GTGCTCTTAATGGAAATTTC,,
9189,T59658,,20,196,TTAATGGAAATTTCAAAGGA,,
9190,T59658,,20,190,GAAATTTCAAAGGACGGGAG,,
9191,T59658,,20,184,TCAAAGGACGGGAGTATTCT,,
9192,T59658,,20,178,GACGGGAGTATTCTGTTGGT,,
9193,T59658,,20,172,AGTATTCTGTTGGTTGGTGT,,
9194,T59658,,20,166,CTGTTGGTTGGTGTCCAGGT,,
9195,T59658,,20,160,GTTGGTGTCCAGGTTTGTGG,,
9196,T59658,,20,154,GTCCAGGTTTGTGGCACTGT,,
9197,T59658,,20,148,GTTTGTGGCACTGTTCCAAG,,
9198,T59658,,20,142,GGCACTGTTCCAAGAGGCCT,,
9199,T59658,,20,136,GTTCCAAGAGGCCTTACACA,,
9200,T59658,,20,130,AGAGGCCTTACACACACACA,,

9201,T59658,,20,124,CTTACACACACACACAAATA,,
9202,T59658,,20,118,CACACACACAAATATATAAT,,
9203,T59658,,20,112,CACAAATATATAATTTTCTA,,
9204,T59658,,20,106,TATATAATTTTCTATACATA,,
9205,T59658,,20,100,ATTTTCTATACATATATATC,,
9206,T59658,,20,94,TATACATATATATCCTCTAG,,
9207,T59658,,20,88,TATATATCCTCTAGCTTGAA,,
9208,T59658,,20,82,TCCTCTAGCTTGAAACTTTT,,
9209,T59658,,20,76,AGCTTGAAACTTTTGCTCAA,,
9210,T59658,,20,70,AAACTTTTGCTCAAGTTTAT,,
9211,T59658,,20,64,TTGCTCAAGTTTATTTATGT,,
9212,T59658,,20,58,AAGTTTATTTATGTCACTGG,,
9213,T59658,,20,52,ATTTATGTCACTGGCTGGCT,,
9214,T59658,,20,46,GTCACTGGCTGGCTGGATCC,,
9215,T59658,,20,40,GGCTGGCTGGATCCAAAGTC,,
9216,T59658,,20,34,CTGGATCCAAAGTCATGTGT,,
9217,T59658,,20,28,CCAAAGTCATGTGTCCACAC,,
9218,T59658,,20,22,TCATGTGTCCACACATTCAT,,
9219,T59658,,20,16,GTCCACACATTCATAAATAA,,
9220,T59658,,20,10,ACATTCATAAATAAAAATTT,,
9221,T59658,,20,4,ATAAATAAAAATTTTACCTA,,
(GENBANK ACCESSION NO. AA284245)
CACTCCTCCAGTAGCGGCTGACGTCGTCAATGGCCGCTATGAGGAGGTGAGCGTGTCCGGCTTCGAGGAGTTCCACCGGGCCGTGG
AACAGCACAATGGCAAGACCATTTTCGCCTACTTTACGGGTTCTAAGGACGCCGGGGGGAAAAGCTGGTGCCCCGACTGCGTGCGG
CTGAACCAGTCGTACGAGAGGGGCTGAAGCACATTAGTGAAGGATGTGTGTTCATCTACTGCCAAGTAGGAGAAAAGCCTTATTGG
AAAGATCCAAATAATGACTTCAGAAAAAACTTGAAAGTAACAGCAGTGCCTACACTACTTAAGTATGGAACACCTCAAAAACTGGT
AGAATCTGAGTGTCTTCAGGCCAACCTGGTGGAAATGTTGTTCTCTGAAGATTAAGATTTTAGGATGGCAATCA
(SEQ ID NO: 9222)

9223,AA284245,,20,399,TGATTGCCATCCTAAAATCT,,
9224,AA284245,,20,393,CCATCCTAAAATCTTAATCT,,
9225,AA284245,,20,387,TAAAATCTTAATCTTCAGAG,,
9226,AA284245,,20,381,CTTAATCTTCAGAGAACAAC,,
9227,AA284245,,20,375,CTTCAGAGAACAACATTTCC,,
9228,AA284245,,20,369,AGAACAACATTTCCACCAGG,,
9229,AA284245,,20,363,ACATTTCCACCAGGTTGGCC,,
9230,AA284245,,20,357,CCACCAGGTTGGCCTGAAGA,,
9231,AA284245,,20,351,GGTTGGCCTGAAGACACTCA,,
9232,AA284245,,20,345,CCTGAAGACACTCAGATTCT,,
9233,AA284245,,20,339,GACACTCAGATTCTACCAGT,,
9234,AA284245,,20,333,CAGATTCTACCAGTTTTTGA,,
9235,AA284245,,20,327,CTACCAGTTTTTGAGGTGTT,,
9236,AA284245,,20,321,GTTTTTGAGGTGTTCCATAC,,
9237,AA284245,,20,315,GAGGTGTTCCATACTTAAGT,,
9238,AA284245,,20,309,TTCCATACTTAAGTAGTGTA,,
9239,AA284245,,20,303,ACTTAAGTAGTGTAGGCACT,,
9240,AA284245,,20,297,GTAGTGTAGGCACTGCTGTT,,
9241,AA284245,,20,291,TAGGCACTGCTGTTACTTTC,,
9242,AA284245,,20,285,CTGCTGTTACTTTCAAGTTT,,
9243,AA284245,,20,279,TTACTTTCAAGTTTTTTCTG,,
9244,AA284245,,20,273,TCAAGTTTTTTCTGAAGTCA,,
9245,AA284245,,20,267,TTTTTCTGAAGTCATTATTT,,
9246,AA284245,,20,261,TGAAGTCATTATTTGGATCT,,
9247,AA284245,,20,255,CATTATTTGGATCTTTCCAA,,
9248,AA284245,,20,249,TTGGATCTTTCCAATAAGGC,,
9249,AA284245,,20,243,CTTTCCAATAAGGCTTTTCT,,
9250,AA284245,,20,237,AATAAGGCTTTTCTCCTACT,,
9251,AA284245,,20,231,GCTTTTCTCCTACTTGGCAG,,
9252,AA284245,,20,225,CTCCTACTTGGCAGTAGATG,,
9253,AA284245,,20,219,CTTGGCAGTAGATGAACACA,,
9254,AA284245,,20,213,AGTAGATGAACACACACATCCT,,
9255,AA284245,,20,207,TGAACACACACATCCTTCACTA,,
9256,AA284245,,20,201,CACATCCTTCACTAATGTGC,,
9257,AA284245,,20,195,CTTCACTAATGTGCTTCAGC,,
9258,AA284245,,20,189,TAATGTGCTTCAGCCCCTCT,,
9259,AA284245,,20,183,GCTTCAGCCCCTCTCGTACG,,
9260,AA284245,,20,177,GCCCCTCTCGTACGACTGGT,,
9261,AA284245,,20,171,CTCGTACGACTGGTTCAGCC,,
9262,AA284245,,20,165,CGACTGGTTCAGCCGCACGC,,
9263,AA284245,,20,159,GTTCAGCCGCACGCAGTCGG,,
9264,AA284245,,20,153,CCGCACGCAGTCGGGGCACC,,
9265,AA284245,,20,147,GCAGTCGGGGCACCAGCTTT,,
9266,AA284245,,20,141,GGGGCACCAGCTTTTCCCCC,,
9267,AA284245,,20,135,CCAGCTTTTCCCCCCGGCGT,,
9268,AA284245,,20,129,TTTCCCCCCGGCGTCCTTAG,,

9269,AA284245,,20,123,CCCGGCGTCCTTAGAACCCG,,
9270,AA284245,,20,117,GTCCTTAGAACCCGTAAAGT,,
9271,AA284245,,20,111,AGAACCCGTAAAGTAGGCGA,,
9272,AA284245,,20,105,CGTAAAGTAGGCGAAAATGG,,
9273,AA284245,,20,99,GTAGGCGAAAATGGTCTTGC,,
9274,AA284245,,20,93,GAAAATGGTCTTGCCATTGT,,
9275,AA284245,,20,87,GGTCTTGCCATTGTGCTGTT,,
9276,AA284245,,20,81,GCCATTGTGCTGTTCCACGG,,
9277,AA284245,,20,75,GTGCTGTTCCACGGCCCGGT,,
9278,AA284245,,20,69,TTCCACGGCCCGGTGGAACT,,
9279,AA284245,,20,63,GGCCCGGTGGAACTCCTCGA,,
9280,AA284245,,20,57,GTGGAACTCCTCGAAGCCGG,,
9281,AA284245,,20,51,CTCCTCGAAGCCGGACACGC,,
9282,AA284245,,20,45,GAAGCCGGACACGCTCACCT,,
9283,AA284245,,20,39,GGACACGCTCACCTCCTCAT,,
9284,AA284245,,20,33,GCTCACCTCCTCATAGCGGC,,
9285,AA284245,,20,27,CTCCTCATAGCGGCCATTGA,,
9286,AA284245,,20,21,ATAGCGGCCATTGACGACGT,,
9287,AA284245,,20,15,GCCATTGACGACGTCAGCCG,,
9288,AA284245,,20,9,GACGACGTCAGCCGCTACTG,,
9289,AA284245,,20,3,GTCAGCCGCTACTGGAGGAG,,
(GENBANK ACCESSION NO. H05914)
TTTTTTTTTTNTTTCACTGTTCAAGGTTTATTGGGGGTTTTAGTTGGTATAACACTTGGATAGTTGGTTGCATTGTTTGTATGTAGAT
CTTTTTACATTATATGGTAATGTACACTACTGATATAGTTCACAAAATAAGATCCTTTGGAAGANTTATACACAAGACATGATATTG
GATTTATACACTGGATCCCAGGGATGTGACTCACTGGGAAAAAATGTTGGACTAGGCATGTTCAGTGAAGGAGCCAGGNAGTTATA
TAACACACGGTAAACATCCACCTGGCTCAAGGGGCAAATGCAGTACGTACAGCATTGGCAGTGGTGCGTCAGAGGTGGCAGAACTN
TTTCACACTAACCAGTTGANGACTACACAAGATTAATACCATCCAGCATCAGGNTATAGCNTGTGGATTTTACAAACCATTTCTTAT
TTCTAACTTTCAGGNGTTGATGTTTTTCCCAGTCCNTCTTAAAATTTTTACTGCTT
(SEQ ID NO: 9290)

9291,H05914,,20,472,AAGCAGTAAAAATTTTAAGA,,
9292,H05914,,20,466,TAAAAATTTTAAGANGGACT,,
9293,H05914,,20,460,TTTTAAGANGGACTGGGAAA,,
9294,H05914,,20,454,GANGGACTGGGAAAAACATC,,
9295,H05914,,20,448,CTGGGAAAAACATCAACNCC,,
9296,H05914,,20,442,AAAACATCAACNCCTGAAAG,,
9297,H05914,,20,436,TCAACNCCTGAAAGTTAGAA,,
9298,H05914,,20,430,CCTGAAAGTTAGAAATAAGA,,
9299,H05914,,20,424,AGTTAGAAATAAGAAATGGT,,
9300,H05914,,20,418,AAATAAGAAATGGTTTGTAA,,
9301,H05914,,20,412,GAAATGGTTTGTAAAATCCA,,
9302,H05914,,20,406,GTTTGTAAAATCCACANGCT,,
9303,H05914,,20,400,AAAATCCACANGCTATANCC,,
9304,H05914,,20,394,CACANGCTATANCCTGATGC,,
9305,H05914,,20,388,CTATANCCTGATGCTGGATG,,
9306,H05914,,20,382,CCTGATGCTGGATGGTATTA,,
9307,H05914,,20,376,GCTGGATGGTATTAATCTTG,,
9308,H05914,,20,370,TGGTATTAATCTTGTGTAGT,,
9309,H05914,,20,364,TAATCTTGTGTAGTCNTCAA,,
9310,H05914,,20,358,TGTGTAGTCNTCAACTGGTT,,
9311,H05914,,20,352,GTCNTCAACTGGTTAGTGTG,,
9312,H05914,,20,346,AACTGGTTAGTGTGAAANAG,,
9313,H05914,,20,340,TTAGTGTGAAANAGTTCTGC,,
9314,H05914,,20,334,TGAAANAGTTCTGCCACCTC,,
9315,H05914,,20,328,AGTTCTGCCACCTCTGACGC,,
9316,H05914,,20,322,GCCACCTCTGACGCACCACT,,
9317,H05914,,20,316,TCTGACGCACCACTGCCAAT,,
9318,H05914,,20,310,GCACCACTGCCAATGCTGTA,,
9319,H05914,,20,304,CTGCCAATGCTGTACGTACT,,
9320,H05914,,20,298,ATGCTGTACGTACTGCATTT,,
9321,H05914,,20,292,TACGTACTGCATTTGCCCCT,,
9322,H05914,,20,286,CTGCATTTGCCCCTTGAGCC,,
9323,H05914,,20,280,TTGCCCCTTGAGCCAGGTGG,,
9324,H05914,,20,274,CTTGAGCCAGGTGGATGTTT,,
9325,H05914,,20,268,CCAGGTGGATGTTTACCGTG,,
9326,H05914,,20,262,GGATGTTTACCGTGTGTTAT,,
9327,H05914,,20,256,TTACCGTGTGTTATATAACT,,
9328,H05914,,20,250,TGTGTTATATAACTNCCTGG,,
9329,H05914,,20,244,ATATAACTNCCTGGCTCCTT,,
9330,H05914,,20,238,CTNCCTGGCTCCTTCACTGA,,
9331,H05914,,20,232,GGCTCCTTCACTGAACATGC,,
9332,H05914,,20,226,TTCACTGAACATGCCTAGTC,,
9333,H05914,,20,220,GAACATGCCTAGTCCAACAT,,
9334,H05914,,20,214,GCCTAGTCCAACATTTTTTC,,
9335,H05914,,20,208,TCCAACATTTTTTCCCAGTG,,

9336,H05914,,20,202,ATTTTTTCCCAGTGAGTCAC,,
9337,H05914,,20,196,TCCCAGTGAGTCACATCCCT,,
9338,H05914,,20,190,TGAGTCACATCCCTGGGATC,,
9339,H05914,,20,184,ACATCCCTGGGATCCAGTGT,,
9340,H05914,,20,178,CTGGGATCCAGTGTATAAAT,,
9341,H05914,,20,172,TCCAGTGTATAAATCCAATA,,
9342,H05914,,20,166,GTATAAATCCAATATCATGT,,
9343,H05914,,20,160,ATCCAATATCATGTCTTGTG,,
9344,H05914,,20,154,TATCATGTCTTGTGTATAAN,,
9345,H05914,,20,148,GTCTTGTGTATAANTCTTCC,,
9346,H05914,,20,142,TGTATAANTCTTCCAAAGGA,,
9347,H05914,,20,136,ANTCTTCCAAAGGATCTTAT,,
9348,H05914,,20,130,CCAAAGGATCTTATTTTGTG,,
9349,H05914,,20,124,GATCTTATTTTGTGAACTAT,,
9350,H05914,,20,118,ATTTTGTGAACTATATCAGT,,
9351,H05914,,20,112,TGAACTATATCAGTAGTGTA,,
9352,H05914,,20,106,ATATCAGTAGTGTACATTAC,,
9353,H05914,,20,100,GTAGTGTACATTACCATATA,,
9354,H05914,,20,94,TACATTACCATATAATGTAA,,
9355,H05914,,20,88,ACCATATAATGTAAAAAGAT,,
9356,H05914,,20,82,TAATGTAAAAAGATCTACAT,,
9357,H05914,,20,76,AAAAAGATCTACATACAAAC,,
9358,H05914,,20,70,ATCTACATACAAACAATGCA,,
9359,H05914,,20,64,ATACAAACAATGCAACCAAC,,
9360,H05914,,20,58,ACAATGCAACCAACTATCCA,,
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13730	CGGAAAGCTGTAGATGGTCA
13731	TAGATGGTCACTGTCTGCAG
13732	CTGTCTGCAGTGTCTCCTGG
13733	TGTCTCCTGGCTCTGGTTCC
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13735	CCAGTATTACTGCACACGTC
13736	TGCACACGTCAGCCGCTGGG
13737	AGCCGCTGGGTGCCCTCGTC
13738	TGCCCTCGTCCTCTGCGGTC
13739	CTCTGCGGTCACACTGACTG
13740	ACACTGACTGAGGCCTTGGC
13741	AGGCCTTGGCCGAGAAGGAG
13742	CGAGAAGGAGTCGTTGCCAT
13743	TCGTTGCCATAGGTGACTGT
13744	AGGTGACTGTGGGGTTCAAC
13745	GGGGTTCAACCTCTGGTCCC
13746	CTCTGGTCCCCCAGTGCCAG
13747	CCAGTGCCAGGTGGACCTGG
13748	GTGGACCTGGGCCTCCGAGA
13749	GCCTCCGAGACTGGGAACAG
13750	CTGGGAACAGCCCGTCCAGG
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13752	GAACAGACCACGGTCCCCTG
13753	CGGTCCCCTGCGTGTCCACC
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13765	GGGGCCGCAGGTCCAGTTCA
13766	GTCCAGTTCAGTGCGGCACG
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13801	TGTTCCCAGGCAGGAGCAAC
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13827	CTCAGCGTCGACTGGGGCGC
Tryptase a	
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Tryptase b	
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PDE4A	
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PDE4A-MTA

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PDE4C

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14305 CTCCCCAGTAGCTGGGATTA
14306 GCTGGGATTACAGGCACCCG
14307 CAGGCACCCGCCACCATGCC
14308 CCACCATGCCCAGCCAATTT
14309 CAGCCAATTTTTGTATTTTT
14310 TTGTATTTTTAGTAGAGATG
14311 AGTAGAGATGGGGTTTCACC
14312 GGGTTTCACCATGTTGGCCA
14313 ATGTTGGCCAGGCTGGTCTC
14314 GGCTGGTCTCGAACTCCTAA
14315 GAACTCCTAACCTCAGGTGA
14316 CCTCAGGTGATCCACCTGCC
14317 TCCACCTGCCTCAGCCTCCC
14318 TCAGCCTCCCAAAGTGCTGG

14319	AAAGTGCTGGGATTATAGGC
14320	GATTATAGGCATGGGCCACT
14321	ATGGGCCACTGTGCTCGGCC
14322	GTGCTCGGCCTCAGAGCCCC
14323	TCAGAGCCCCGTCTCTTTCC
14324	GTCTCTTTCCTTTCCTTCTC
14325	TTTCCTTCTCTTTTCTTTTT
14326	TTTTCTTTTTATTTTTAGAC
14327	ATTTTTAGACAGGATCTTGC
14328	AGGATCTTGCTGTGTTGCCC
14329	TGTGTTGCCCAGGCTGGAGT
14330	AGGCTGGAGTGCAGTGATGC
14331	GCAGTGATGCAGTCATAGCT
14332	AGTCATAGCTCTCTTCAGCC
14333	CTCTTCAGCCTCCAACTCCT
14334	TCCAACTCCTGGGCTCAAGC
14335	GGGCTCAAGCGATCCCCTTT
14336	GATCCCCTTTGTCTCAACCT
14337	GTCTCAACCTTCTGAGTAGC
14338	TCTGAGTAGCTGGGATTCTC
14339	TGGGATTCTCAGGTGCACAC
14340	AGGTGCACACCACCATGCCT
14341	CACCATGCCTGGCTAATTTT
14342	GGCTAATTTTTTTTTTCAGA
14343	TTTTTTCAGAGATGGTGGGG
14344	GATGGTGGGGTCTTGCTAT
14345	GTCTTGCTATGTTGCCCAGG
14346	GTTGCCCAGGCTGGTCTCAA
14347	CTGGTCTCAAACTCCTGAGC
14348	ACTCCTGAGCTTAAGCAGTC
14349	TTAAGCAGTCCTCCCACCTC
14350	CTCCCACCTCAGCCTCCCAA
14351	AGCCTCCCAAAGTACCGGGA
14352	AGTACCGGGATTACAGGCAT
14353	TTACAGGCATAAGCCACTAT
14354	AAGCCACTATGCCTTGCCCA
14355	GCCTTGCCCAGCCCTTCTTT
14356	GCCCTTCTTTTCTGCTCCTC
14357	TCTGCTCCTCTTCCTGCCCC
14358	TTCCTGCCCCCTACCGTAGT
14359	CTACCGTAGTTTCAGAAACA
14360	TTCAGAAACAAAACTGGGTA
14361	AAACTGGGTATGAGTGAAGC
14362	TGAGTGAAGCTTTGGTGCTG
14363	TTTGGTGCTGAAAATTTTCC
14364	AAAATTTTCCCCACTCACAT
14365	CCACTCACATTTCCATGCTC
14366	TTCCATGCTCTTGCAGAGAG
14367	TTGCAGAGAGCCGCTTGGTA
14368	CCGCTTGGTAGAGGAAGACA
14369	GAGGAAGACAGGGAGATGCC
14370	GGGAGATGCCTTTGGGATGG
14371	TTTGGGATGGTCTCCTGACT
14372	TCTCCTGACTCCCCACCCTT
14373	CCCCACCCTTTGTGCAGGGC
14374	TGTGCAGGGCTACTACAGAG
14375	TACTACAGAGGCAGAAAGCT
14376	GCAGAAAGCTGGCCCGAAGT
14377	GGCCCGAAGTAGATGAGCAA
14378	AGATGAGCAATAAATATTTG
14379	TAAATATTTGATAAAGAAGG
14380	ATAAAGAAGGAAATAATTAA
14381	AAATAATTAAGTGACAGATG
14382	GTGACAGATGTGACTCAAGA
14383	TGACTCAAGAGTGACCACTG
14384	GTGACCACTGGAGAGGGTGG
14385	GAGAGGGTGGACTAGAGGCT
14386	ACTAGAGGCTCCAGCAGACA
14387	CCAGCAGACAGCACCTCTCC
14388	GCACCTCTCCTCACAGGGAT
14389	TCACAGGGATAGAAGCCCAG
14390	AGAAGCCCAGGAGAAAGACA
14391	GAGAAAGACACCAGGGCATC
14392	CCAGGGCATCGTAAGAGGCT
14393	GTAAGAGGCTGCCCCTTAGA

14394	GCCCCTTAGAGAGCTCTTTT
14395	GAGCTCTTTTAGGCAAGTCT
14396	AGGCAAGTCTAGGGTCAGAG
14397	AGGGTCAGAGTGGACCCCAG
14398	TGGACCCCAGCCAGGTGCCT
14399	CCAGGTGCCTCCAATTAGAC
14400	CCAATTAGACCCTGGGAGCC
14401	CCTGGGAGCCACCTATAACT
14402	ACCTATAACTAAGAGCTTGA
14403	AAGAGCTTGATTGTCTCCCT
14404	TTGTCTCCCTAAATGGGTGG
14405	AAATGGGTGGGAAAGTGAAG
14406	GAAAGTGAAGCAGGAGCCAC
14407	CAGGAGCCACATGGAGCCTC
14408	ATGGAGCCTCTTCCTGGAAA
14409	TTCCTGGAAAGTCTGCCTGC
14410	GTCTGCCTGCCAAGAGCCAA
14411	CAAGAGCCAAAGGGCTTTAC
14412	AGGGCTTTACCATCCATTGC
14413	CATCCATTGCCCCTGCAGTT
14414	CCCTGCAGTTCACGCAGGGC
14415	CACGCAGGGCTGGCCCTAAG
14416	TGGCCCTAAGTCCTCTGGTT
14417	TCCTCTGGTTGTCGAGGGGT
14418	GTCGAGGGGTAAGTCCCCAG
14419	AAGTCCCCAGGGTCTGGGCC
14420	GGTCTGGGCCGGCTTCAGGG
14421	GGCTTCAGGGGACAGGAGTT
14422	GACAGGAGTTCAGTGTCAGG
14423	CAGTGTCAGGCAACTCCAAG
14424	CAACTCCAAGGCCTCTTTGG
14425	GCCTCTTTGGCTAAAGCTGT
14426	CTAAAGCTGTCTCTTCCCCC
14427	CTCTTCCCCCTCCTCTTCTT
14428	TCCTCTTCTTCCTCCTCATC
14429	CCTCCTCATCCTCTTCCTCT
14430	CTCTTCCTCTGCCTCCTCCA
14431	GCCTCCTCCAGAGTCAGTTC
14432	GAGTCAGTTCAAACTGGAAT
14433	AAACTGGAATCTGTCAGGCC
14434	CTGTCAGGCCCGTCCCGCTC
14435	CGTCCCGCTCGGGGTTGGTG
14436	GGGGTTGGTGAGGTCTGAGG
14437	AGGTCTGAGGGACTTCGGGG
14438	GACTTCGGGGGATCTTGCTC
14439	GATCTTGCTCTGGTACCACT
14440	TGGTACCACTCTCGATTGTC
14441	CTCGATTGTCCTCCAGCGTG
14442	CTCCAGCGTGTCCAGCAGGT
14443	TCCAGCAGGTCCTGTGCATC
14444	CCTGTGCATCTGGGTGGACC
14445	TGGGTGGACCAGGTCAGCCC
14446	AGGTCAGCCCAAGTCTCCCA
14447	AAGTCTCCCACAGTGGGTGA
14448	CAGTGGGTGAGCAATGTAGT
14449	GCAATGTAGTCAATGAAACC
14450	CAATGAAACCCACCTGGGAC
14451	CACCTGGGACTTCTCCACTG
14452	TTCTCCACTGAGGCCGTATG
14453	AGGCCGTATGCTTGTCACAC
14454	CTTGTCACACATGGGACTGA
14455	ATGGGACTGATGTCCAGGCC
14456	TGTCCAGGCCCGACTCACGC
14457	CGACTCACGCTCGCGGTCTC
14458	TCGCGGTCTCCCTGCTGGAA
14459	CCTGCTGGAAGAACTCGGCC
14460	GAACTCGGCCATGATGCGGT
14461	ATGATGCGGTCCGTCCACTG
14462	CCGTCCACTGGCGGTACAGG
14463	GCGGTACAGGGGCAGCGGCT
14464	GGCAGCGGCTTGGTGGGGTT
14465	TGGTGGGGTTGCTCAGATCA
14466	GCTCAGATCAGCACAGTGCA
14467	GCACAGTGCACCAGGTTCTG
14468	CCAGGTTCTGCAAGACCTGG

14469	CAAGACCTGGATTCGGTCGG
14470	ATTCGGTCGGAATAGTTGTC
14471	AATAGTTGTCCAGGAGGAGG
14472	CAGGAGGAGGACACCGAGGC
14473	ACACCGAGGCTTGTCACCTT
14474	TTGTCACCTTCTTGGTCTCC
14475	CTTGGTCTCCACCATGGTCT
14476	ACCATGGTCTTGAGGTCGGC
14477	TGAGGTCGGCCAGGAGGTTC
14478	CAGGAGGTTCATGTGTTTGG
14479	ATGTGTTTGGACATGTCTGT
14480	ACATGTCTGTGGCCAGCACC
14481	GGCCAGCACCATGTCAATGA
14482	ATGTCAATGACCATCCTGCG
14483	CCATCCTGCGCAGACTCAGT
14484	CAGACTCAGTCGCTGCTTGG
14485	CGCTGCTTGGCGCTGAGGTT
14486	CGCTGAGGTTCTGGAAGATA
14487	CTGGAAGATATCGCAGTTCT
14488	TCGCAGTTCTCTGCCTGCAG
14489	CTGCCTGCAGCAGCTTGAAG
14490	CAGCTTGAAGCCCACAGCCA
14491	CCCACAGCCAGGTGATGGTT
14492	GGTGATGGTTCTCCAGCACC
14493	CTCCAGCACCGAGGCGTCGT
14494	GAGGCGTCGTTGTACATAAG
14495	TGTACATAAGCGCCACGTCT
14496	CGCCACGTCTGAGTTGGTGT
14497	GAGTTGGTGTTAATCAGAAA
14498	TAATCAGAAACTGGTTGGAG
14499	CTGGTTGGAGACCCCAGGAT
14500	ACCCCAGGATGGTCCACGTC
14501	GGTCCACGTCGTGGATGGCG
14502	GTGGATGGCGCTTGCAAAGA
14503	CTTGCAAAGAGGGCAGCCAG
14504	GGGCAGCCAGGATTTCCAAG
14505	GATTTCCAAGTCTGTGAACA
14506	TCTGTGAACACAGCCTCGAG
14507	CAGCCTCGAGGGCGGGCGTA
14508	GGCGGGCGTAGCCAGCAGCA
14509	GCCAGCAGCACATGCGTGGA
14510	CATGCGTGGACTGGGCCACG
14511	CTGGGCCACGTCGGCGGCAT
14512	TCGGCGGCATGTAGGCTGTT
14513	GTAGGCTGTTGTGGTAGGCC
14514	GTGGTAGGCCACATTGGCGT
14515	ACATTGGCGTGGTAGTGACC
14516	GGTAGTGACCCTCCAGCATC
14517	CTCCAGCATCAGCAGGTAGG
14518	AGCAGGTAGGTGGCCAGTGT
14519	TGGCCAGTGTGTCTGCTGGG
14520	GTCTGCTGGGATCTGGAATG
14521	ATCTGGAATGTCTTCAGCAG
14522	TCTTCAGCAGGTCCCGCTCC
14523	GTCCCGCTCCTGAAAAATGC
14524	TGAAAAATGCTGAATATGAT
14525	TGAATATGATAGCTGTGAGG
14526	AGCTGTGAGGGGCCGGTTCC
14527	GGCCGGTTCCCACTTACGTC
14528	CACTTACGTCCGCCACCTTG
14529	CGCCACCTTGAACACATCAA
14530	AACACATCAAGTCCCCACTT
14531	GTCCCCACTTGTTGGTGTCT
14532	GTTGGTGTCTTCTAGCTCCT
14533	TCTAGCTCCTTGGCCAGTTG
14534	TGGCCAGTTGCTCCTCCTGG
14535	CTCCTCCTGGTCAGTCTGGA
14536	TCAGTCTGGACCCCAAAGCG
14537	CCCCAAAGCGTGGGACAGTG
14538	TGGGACAGTGGCTGAGGAGA
14539	GCTGAGGAGAGGCTGGCACT
14540	GGCTGGCACTGTGGCAGAGC
14541	GTGGCAGAGCCCATGTAGGC
14542	CCATGTAGGCCACTGATCCG
14543	CACTGATCCGGGACATGGGC

14544	GGACATGGGCTGTGGGGCCT
14545	TGTGGGGCCTCCTCAGCGGT
14546	CCTCAGCGGTCACCTTGGGC
14547	CACCTTGGGCAGCTCCACCT
14548	AGCTCCACCTCGGTCTGCTG
14549	CGGTCTGCTGGTCCAGGAAG
14550	GTCCAGGAAGGTCCGGGAGA
14551	GTCCGGGAGATGTACTCGGA
14552	TGTACTCGGACACCTGGTTC
14553	CACCTGGTTCCCGGAGCGGC
14554	CCGGAGCGGCTGGTTTCGGA
14555	TGGTTTCGGACAGGTGGGTC
14556	CAGGTGGGTCAACTCCCGGT
14557	AACTCCCGGTTCAGGATCCG
14558	TCAGGATCCGCTTGAACTTG
14559	CTTGAACTTGTTGGAGGCCA
14560	TTGGAGGCCATCTCCCCCAC
14561	TCTCCCCCACCGAGTGCCGG
14562	CGAGTGCCGGGTCTGCAGCG
14563	GTCTGCAGCGTCTCCAACTG
14564	TCTCCAACTGATCCAGGCAC
14565	ATCCAGGCACCAGTCCAGCT
14566	CAGTCCAGCTCGTCTAGCGT
14567	CGTCTAGCGTCTCCAATGCC
14568	CTCCAATGCCAGCTTCTGCC
14569	AGCTTCTGCCCCGTGTCCTC
14570	CCGTGTCCTCTGCAGGAGGG
14571	TGCAGGAGGGAGCTGATTGC
14572	AGCTGATTGCTGGATGAAGG
14573	TGGATGAAGGGTTTCCGACG
14574	GTTTCCGACGGGTCCCTGCT
14575	GGTCCCTGCTTGGCTGCTCC
14576	TGGCTGCTCCTAGGCATTGC
14577	TAGGCATTGCTGGCGGGCAA
14578	TGGCGGGCAAGGGCCGCCAC
14579	GGGCCGCCACGTTGCTCCGA
14580	GTTGCTCCGAACGGTCCGCA
14581	ACGGTCCGCAGACTGGCCAG
14582	GACTGGCCAGGACCTGGGCA
14583	GACCTGGGCAAAGGGCGTCA
14584	AAGGGCGTCACAATCATGTC
14585	CAATCATGTCCTCTCCATGT
14586	CTCTCCATGTAGGTCGCTGG
14587	AGGTCGCTGGCCACAGAGGA
14588	CCACAGAGGAGTTCCGAGAC
14589	GTTCCGAGACATGGCCTTGG
14590	ATGGCCTTGGGCGAGAGTTC
14591	GCGAGAGTTCATAGTCGCTA
14592	ATAGTCGCTATCTGAGCGGT
14593	TCTGAGCGGTACAGGAAGGA
14594	ACAGGAAGGACTCGCGCCGC
14595	CTCGCGCCGCTGGCTGTGCG
14596	TGGCTGTGCGGGACTGGAGC
14597	GGACTGGAGCCTGCATAATC
14598	CTGCATAATCCGGCCCAGGC
14599	CGGCCCAGGCCAGGGCTGGA
14600	CAGGGCTGGACTGAGGGTCC
14601	CTGAGGGTCCAGGGCCCTCC
14602	AGGGCCCTCCTCCCACACGA
14603	TCCCACACGAGAGCCCATTT
14604	GAGCCCATTTTCCAGGTCAA
14605	TCCAGGTCAAAGCGCCTGCA
14606	AGCGCCTGCAGGAGGAAACG
14607	GGAGGAAACGGGCCAGGAGA
14608	GGCCAGGAGAGCCGCGACTT
14609	GCCGCGACTTCCTGAGCTCC
14610	CCTGAGCTCCGGCCGCGGGC
14611	GGCCGCGGGCTCAGGTCCCT
14612	TCAGGTCCCTCTCGCGGCAG
14613	CTCGCGGCAGCCCGCGGACT
14614	CCCGCGGACTTGTCCGGATC
14615	TGTCCGGATCCGAATAGAAG
14616	CGAATAGAAGCGCTGTTGGA
14617	CGCTGTTGGATGCGGATGGG
14618	TGCGGATGGGGCGCCGGGGT

14619	GCGCCGGGGTTGCCGCCACA
14620	TGCCGCCACAGGTGCTTCGG
14621	GGTGCTTCGGGGCTCTGGTC
14622	GGCTCTGGTCATGCTGTGGC
14623	ATGCTGTGGCGGCCGCGAGA
14624	GGCCGCGAGAGCGACTCAAC
14625	GCGACTCAACCTGCTGCAAG
14626	CTGCTGCAAGCCTCTGCCCC
14627	CCTCTGCCCCTTCGCCGACC
14628	TTCGCCGACCCCCAGGTTCT
14629	CCCAGGTTCTCCATGCGCCA
14630	CCATGCGCCAGAGAAAGGCT
14631	GAGAAAGGCTGGATGAAGGG
14632	GGATGAAGGGTTTCCGACGG
14633	TTTCCGACGGGTCCCTGCTT
14634	GTCCCTGCTTGGCTGCTCCT
14635	GGCTGCTCCTAGGCATTGCT
14636	AGGCATTGCTGGCGGGCAAG
14637	GGCGGGCAAGGGCCGCCACG
14638	GGCCGCCACGTTGCTCCGAA
14639	TTGCTCCGAACGGTCCGCAG

In one preferred embodiment, the links between neighboring mononucleotides are phosphodiester links. In another preferred, at least one mononucleotide phosphodiester residue of the anti-sense oligonucleotide(s) is substituted by a methylphosphonate, phosphotriester, phosphorothioate, phosphorodithioate, boranophosphate, formacetal, thioformacetal, thioether, carbonate, carbamate, sulfate, sulfonate, sulfamate, sulfonamide, sulfone, sulfite, sulfoxide, sulfide, hydroxylamine, 2'-O-methyl, methylene(methyimino), methyleneoxy (methylimino), phosphoramidate residues, and combinations thereof. The oligos having one or more phosphodiester residues substituted by one or more of the other residues are generally longer lasting, given that these residues are more resistant to hydrolysis than the phosphodiester residue. In some cases up to about 10%, about 30%, about 50%, about 75%, and even all phosphodiester residues may be substituted (100%).

In another preferred embodiment, the multiple target anti-sense oligo (MTA) of the invention comprises at least about 7 mononucleotides, in some instances up to 60 and more mononucleotides, preferably about 10 to about 36, and more preferably about 12 to about 21 mononucleotides. However, other lengths are also suitable depending on the length of the target macromolecule. Examples of multi-targeted anti-sense (MTA) oligos of the invention are provided in Table 3 below, which includes ninety-four sequences (SEQ ID NOS.: 2316 through 2410).

Table 3: MTA Oligos, Location Targeted & Target

MTA Oligo	SEQ. ID No.	Location	Compound Targeted	Target
HUMNFKBP65A AS				
CCC GGC CCC GCC TCG TGC C	12388	5'=1	EPI 2192	
CGT CCB TGC CGC GGG CCC	12389	5'=28(AUG)	EPI 2193	
GCC CCG CTG CTT GGG CTG CTC TGC CGG G	12390	5'=65	EPI 2194	
TCT GTG CTC CTC TCG CCT GGG	12391	5'=137	EPI 2195	
TGG TGG GGT GGG TCT TGG TGG	12392	5'=159	EPI 2196	
CTG TCC CTG GTC CTG TG	12393	5'=196	EPI 2197	
GGT CCC GCT TCT TC	12394	5'=362	EPI 2198	
GGG GTT GTT GTT GGT CTG G	12395	5'=401	EPI 2199	
TGT CCT CTT TCT GC	12396	5'=656	EPI 2200	
GCC TCG GGC CTC CC	12397	5'=697	EPI 2201	
GGC TGG GGT CTG CGT	12398	5'=769	EPI 2202	
GGC CGG GGG TCG GTG GGT CCG CTG	12399	5'=953	EPI 2203	
GGG CTG GGG TGC TGG CTT GGG G	12400	5'=1022	EPI 2204	
GGG GCT GGG GCC TGG GCC	12401	5'=1208	EPI 2205	
GCC TGG GTG GGC TTG GGG GC	12402	5'=1272	EPI 2206	
GCT GGG TCT GTG CTG TTG CC	12403	5'=1362	EPI 2207	
GTT GTG TGG GGG GCC	12404	5'= 1451	EPI 2208	
GCT GGG TCG GGG GGC CTC TGG GCT GTC	12405	5'=1511	EPI 2209	
GCC CCG GGG CCC CC	12406	5'=1550	EPI 2210	
TGG CTC CCC CCT CC	12407	5'=1772	EPI 2211	
GCT CCC CCC TTT CC	12408	5'=1863	EPI 2212	
CGG ACG AAG ACA GAG A	12409	5'=1979	EPI 2213	
GGC TTT GTG GGC TC	12410	5'=2011	EPI 2214	
GCC TGC TCT CCC CC	12411	5'=2312	EPI 2215	
CCC GGC CCC GCC BCG BBC C	12412	intron	EPI 2192-01A	HSU50136C4Synth

CCC GGC CCC GCC BCG	12413	intron	EPI 2192-01B	
CCC GGC CCC GCC BCG BBC C	12414	5'untr	EPI 2192-02A	HUMLIPOX5LO
CCC GGC CCC GCC BCG	12415	5'untr	EPI 2192-02B	
CCC GBC CCC GCC TCB BG	12416	trans	EPI 2192-03A	HSNFKBS Subunit
CCC GBC CCC GCC TC	12417	trans	EPI 2192-03B	
CCG GCC CCG CCT C	12418	5'untr	EPI 2192-04	TGFβR1
CCC GBB CCC GCB TBG TGC C	12419	5'trans	EPI 2192-05A	HSU58198I1 enhan
CCC GCB TBG TGC C	12420	5'untr	EPI 2192-05B	
CCC GGB CCC BCC BBG TGC C	12421	3'trans	EPI 2192-06	HSVECAD
CBG BBC CCG CCT CGT GCC	12422	intron	EPI 2192-07A	NFKB2
C CCG CCT CGT GCC	12423	intron	EPI 2192-07B	NFKB2
CCG GCB CCG CCT CBT GCC	12424	5'trans	EPI 2192-08	Carboxypep
CCG GCC CCG CCB CBT GCC	12425	3'trans	EPI 2192-09	HumADRA2Cα2AdrKid
CCC GBC CCC GBC TCG	12426	5'untrs	EPI 2192-10	HUMFK506B
CCC GGC CBC GBC TCG	12427	5'untrs	EPI 2192-11	HSNBARKS1βAdrKin
CCC GGC CCB GCC TBG	12428	5'UTR	EPI 2192-12	HSNFXN1(NFKB1)
CCC GGC BCB GBC TCG TBC C	12429	3'UTR	EPI 2192-13	HSILF(transcrp. Factor ILF)
CCC GGC CCC GCC BCG	12413		EPI-2192-14	NFKB/C4Syn/5-LO/ TGFBrec1 MTA
CCC GGC CCC GCC BCG	12430		EPI-2192-15	NFKB/C4Syn/5-LOMTA
TCC BTG CCG CGG GC	12432	3' trans	EPI-2193-01	MBTOncogene
TCC BTG CCB CGG GCC	12433	3' trans	EPI-2193-02	HSFGR2(IG)
TCC BTG CCB CGG GCC	12434	mid cod	EPI-2193-03	5-LO
TCC BTG CCB CBG GCC	12435	mid cod	EPI-2193-04	HUMTK14
GTC CBT GBC GCG G	12436	3'trans	EPI-2193-05	HUMTNFR
TC CBT GBC GCG GG	12437	AUG		Probl.HUMPTCH cardiacK+channel
TCT GBG CTC CTC TBB CCT GGG	12438	intr	EPI-2195-01	humCSPAcytotox. Ser.Protease
CTG TGC BCC TBB CBC CTG GG	12439	intr	EPI-2195-02	HSINOSX08induc.NOS
TGT GBT CCB CTB GBC TGG G	12440		EPI-2195-03	HUMACHRM2musc.m2 acetylch.rec.
TCT GTB CTC BBC TCB CCT G	12441		EPI-2195-04	s86371s1 Neurokinin3Recept
TGC TCC TCB CBB CTG GG	12442		EPI-2195-05	HUMMIP1 Amacro Inflam. Factor
CTC CTC TBG CCT GG β-Adr Rec Kinase	12443		EPI-2195-06	HSNBARKS4
GTG CTC CBB TCB BCT GGG	12444		EPI-2195-07	HSTNFR2SO6TNF R2
GTG CBC CBB TCB CCT GGG binding prot.	12445		EPI-2195-08	humfkbp fk506
TCT GTG CBC CTC TBG BCT	12446	exon	EPI-2195-09	HSNBARKS1β-Adr. Recept.Kinase
CTG TBB TCC TBB CBC CTG G	12482	intron	EPI-2195-10	HUMIL8
TGT GCT BBT CBC BCB TGG G	12448		EPI-2195-11	HSU50157 PDE4
GTG CBC CBC TCB CCT G	12449	intron/exon	EPI-2195-12	IL-2 R
CTG TGC BCC TCT C	12450	3'UTR	EPI-2203-05	IL-6 R HSIL6R
CBG TGC BCC BCT CBC CTG	12451	intr/ex	EPI-2203-06A	HSIL2rG6
G TGC BCC BCT CBC CTG	12449	intr/ex	EPI-2203-06B	HSIL2rG6
CBC CTC TCB CCT GGG	12453	coding	EPI-2203-07A	HUMIL71
C CTC TCB CCT GGG	12454	coding	EPI-2203-07B	IL-7 HUMIL71
GCT CCB CTC GCC T	12455	coding	EPI-2203-08	IL-6 R HSI6REC
TGC TCC TCB CGC C	12456	intron PDGF A	EPI-2303-09	Chain HUMPDGFAB
GTT GTT GBT CTG G Factor for IL-5	12457	3'utr	EPI-2199-01	GATA-4Transcrip.
GGT TGB BBT TGG TCT TGG	12458	Coding	EPI-2199-02	TNFα HUMTNFA
GGT TGT TGB TGB TCT G	12459	Far 5'UTR	EPI-2199-03	HSSUBP1G(Sub Pr)
GGG TTB BBG TTG BTC TGG	12460	Coding	EPI-2199-04	NeutrophilAdh. R HUMNARIA
GGG TTB BBG TTG BTC TGG	12461	HSHM2	EPI-2199-05	m2 Muscarinic R
TTG TTG TBG BTC TGG	12462	HUML1CAM	EPI-2199-06	L1 LeukAadhProt
GGG TBG BBG BGT CCG CTG	12463	coding	EPI-2203-01	HUMGATA2A
GGG TCB GBG GBT CBG CTG	12464	S71424S2	EPI-2203-02	IGE eps
GGG TBG GTG GGT C	12465	coding	EPI-2203-03	HSGCSFR2
GGG TCG GBG GGT CBG C	12466	HUMITGF	EPI-2203-04	TGFβ3
GGG TGG GCT T	12485	HUMNK65PRO	EPI-2206-01	NFKB/NK & TCell Activating Prot
GGG TGG GCT TGG G	12468	HUMPEREEB	EPI 2206-02	NFKB/Prostagl. EP3 Rec

CCTGGGTGGGBBTGGG	12469	EPI 2206-03 HSNF2B/GCSF NFKB/GranuLocCSF/ Transcr.FactorNF2B
CCTGGBTGGGCBTGGG	12470	EPI-2206-04 HUMLAP/NFKB Leuk.Adhes.Prot
GCCTGBGTGBBCTTGGG N2 S63833	12471	EPI2206-05 NFKB/Endothel
CCCAVGVCCVCCCAGGC	11769	EPI 2206-06 NFKBAS13/B Lymph SerThrProt.Kinase
AGCCCACCCAGGC	11770	EPI2206-07 NFKBAS13/GCSF1 HSGCSFR1Rec
BCCTGGGTGGGCTB	11771	EPI2206-08 NFKBAS13/GCSF1/ NK7TCELLACT.Prot
GGTGGGCTTGGG HSTGFB1 TGFB	11772	EPI 2206-09 NFKBAS13/
CCBBGGTGGGCTTGGG	11773	EPI 2206-10 NFKBAS13/ HSTGFB1 TGFB1
CTGGGTGGGBBTGGG HSGCSFR1 GCSFR1	11774	EPI 2206-11 NFKBAS13/
CCBGGGTGGGCTTGG	11775	EPI 2206-12 NFKBAS13/HUMCD30A LymphActAntigCoding
GGGTGGGCTTGG	11776	EPI-2206-12B NFKBAS13/HUMCD30A
CCTGBGTGBGCBTGGG	11777	EPI 2206-13 NFKBAS13/HUMCAM1V Vasc.Endoth.Cell Adh.Molec

B: Universal Base

The MTA oligos of Table 3 and others in accordance with this invention are suitable for use with two or more of the targets, such as those listed in Table 4 below.

Table 4: Targets for the MTA Oligos of Table 3

Compound	Target
EPI 2010	Adenosine A1 receptor
EPI 2045	Adenosine A3 receptor
EPI 2873, EPI 2193	NFκB
EPI 1873	Interleukin-1
EPI 1857	Interleukin -5
EPI 2945	Interleukin -4
EPI 2977	Interleukin -8
EPI 2031	5-Lipoxygenase
EPI 1898	Leukotriene C-4 Synthase
EPI 1856	Eotaxin
EPI 1131	ICAM
EPI 1085	VCAM
EPI 2085	TNFα
EPI 1908	PAF
EPI 1925	IL-4 receptor
EPI 2643	β2 aderenergic receptor kinase
EPI 2934	Tryptase
EPI 2033	Major Basic Protein
EPI 2795	Eosinophil Peroxidase

NfκB: nuclear factor κB
ICAM: intracellular adhesion molecule
VCAM: vascular cell adhesion molecule
TNF: tumor necrosis factor
PAF: platelet activating factor

The mRNA sequence of the targeted protein or the DNA sequence of the regulatory segment may be derived from the nucleotide sequence of the gene expressing or regulating the protein, whether for existing targets or

those to be found in the future. Sequences for many target genes of different systems are presently known. See, GenBank data base, NIH, the entire sequences of which are incorporated here by reference. The sequences of those genes, whose sequences are not yet available, may be obtained by isolating the target segments applying technology known in the art. Once the sequence of the gene, its RNA and/or the protein are known, anti-sense oligonucleotides are produced as described above and utilized to validate the target by in vivo administration and testing for a reduction of the production of the targeted protein in accordance with standard techniques, and of specific functions. As already described above, the anti-sense oligonucleotides may be of any suitable length, e.g., from about 7 to about 60 nucleotides in length, depending on the particular target being bound and the mode of delivery thereof. The anti-sense oligonucleotide preferably is directed to an mRNA region containing a junction between intron and exon or to regions vicinal to the junction. Where the anti-sense oligonucleotide is directed to an intron/exon junction, it may either entirely overlie the junction or may be sufficiently close to the junction to inhibit splicing out of the intervening exon during processing of precursor mRNA to mature mRNA, e.g., with the 3' or 5' terminus of the anti-sense oligonucleotide being positioned within about, for example, 10, 5, 3, or 2 nucleotide of the intron/exon junction. Also preferred are anti-sense oligonucleotides which overlap the initiation codon and, more generally, those that target the coding region of the target mRNA. When practicing the present invention, the anti-sense oligonucleotide(s), administered, whether DNA or RNA may be related in origin to the species to which it is administered or to other species including prokaryotes. When treating humans, human anti-sense may be used if desired, except when targeting foreign invaders. Anti-sense oligos to endogenous sequences of other species, however, are also clearly encompassed.

Other agents that may be incorporated into the present composition are one or more of a variety of therapeutic agents which are administered to humans and animals. Some of the categories of agents suitable for incorporation into the present composition and formulations are analgesics, pre-menstrual medications, menopausal agents, anti-aging agents, anti-anxiolytic agents, mood disorder agents, anti-depressants, anti-bipolar mood agents, anti-schizophrenic agents, anti-cancer agents, alkaloids, blood pressure controlling agents, hormones, anti-inflammatory agents, muscle relaxants, soporific agents, anti-ischemic agents, anti-arrhythmic agents, contraceptives, vitamins, minerals, tranquilizers, neurotransmitter regulating agents, wound healing agents, anti-angiogenic agents, cytokines, growth factors, anti-metastatic agents, antacids, anti-histaminic agents, anti-bacterial agents, anti-viral agents, anti-gas agents, appetite suppressants, sun screens, emollients, skin temperature lowering products, radioactive phosphorescent and fluorescent contrast diagnostic and imaging agents, libido altering agents, bile acids, laxatives, anti-diarrheic agents, skin renewal agents, hair growth agents, analgesics, pre-menstrual medications, anti-menopausal agents such as hormones and the like, anti-aging agents, anti-anxiolytic agents, nociceptic agents, mood disorder agents, anti-depressants, anti-bipolar mood agents, anti-schizophrenic agents, anti-cancer agents, alkaloids, blood pressure controlling agents, hormones, anti-inflammatory agents, other agents suitable for the treatment and prophylaxis of diseases and conditions associated or accompanied with pain and inflammation, such as arthritis, burns, wounds, chronic bronchitis, chronic obstructive pulmonary disease (COPD), inflammatory bowel disease such as Crohn's disease and ulcerative colitis, autoimmune disease such as lupus erythematosus, muscle relaxants, steroids, soporific agents, anti-ischemic agents, anti-arrhythmic agents, contraceptives, vitamins, minerals, tranquilizers, neurotransmitter regulating agents, wound and burn healing agents, anti-angiogenic agents, cytokines, growth factors, anti-metastatic agents, antacids, anti-histaminic agents, anti-bacterial agents, anti-viral agents, anti-gas agents, agents for reperfusion injury, counteracting appetite suppressants, sun screens, emollients, skin temperature lowering products, radioactive phosphorescent and fluorescent contrast diagnostic and imaging agents, libido altering agents, bile acids, laxatives, anti-diarrheic agents, skin renewal agents, hair growth agents, etc.

Among the hormones suitable for active agents of the invention, are female and male sex hormones such as premarin, progesterone, androsterones and their analogues, thyroxine and glucocorticoids, including Budesonide, Dexamethasone, Flunisolide, Triamcinolone, and others. Among the libido altering agents are Viagra and other NO-level modulating agents, among the analgesics are over-the-counter medications such as ibuprofen, oruda, aleve and acetaminophen and controlled substances such as morphine and codeine, among the anti-depressants are tricyclics, MAO inhibitors and epinephrine, γ-amino butyric acid (GABA), dopamine and serotonin level elevating agents, e.g. Prozac, Amytryptilin, Wellbutrin and Zoloft, among the skin renewal agents are Retin-A, hair growth agents such as Rogaine, among the anti-inflammatory agents are non-steroidal anti-inflammatory drugs (NSAIDs) and steroids, among the soporifics are melatonin and sleep inducing agents such as diazepam, cytoprotective, anti-ischemic and

head injury agents such as enadoline, and many others. Examples of agents in the different groups are provided in the following list. Examples of analgesics are Acetaminophen, Anilerdine, Aspirin, Buprenorphine, Butabital, Butorpphanol, Choline Salicylate, Codeine, Dezocine, Diclofenac, Diflunisal, Dihydrocodeine, Elcatoninin, Etodolac, Fenoprofen, Hydrocodone, Hydromorphone, Ibuprofen, Ketoprofen, Ketorolac, Levorphanol, Magnesium Salicylate, Meclofenamate, Mefenamic Acid, Meperidine, Methadone, Methotrimeprazine, Morphine, Nalbuphine, Naproxen, Opium, Oxycodone, Oxymorphone, Pentazocine, Phenobarbital, Propoxyphene, Salsalate, Sodium Salicylate, Tramadol and Narcotic analgesics in addition to those listed above. See, Mosby's Physician's GenRx. Examples of anti-anxiety agents include Alprazolam, Bromazepam, Buspirone, Chlordiazepoxide, Chlormezanone, Clorazepate, Diazepam, Halazepam, Hydroxyzine, Ketaszolam, Lorazepam, Meprobamate, Oxazepam and Prazepam, among others. Examples of anti-anxiety agents associated with mental depression are Chlordiazepoxide, Amitriptyline, Loxapine Maprotiline and Perphenazine, among others. Examples of anti-inflammatory agents are non-rheumatic Aspirin, Choline Salicylate, Diclofenac, Diflunisal, Etodolac, Fenoprofen, Floctafenine, Flurbiprofen, Ibuprofen, Indomethacin, Ketoprofen, Magnesium Salicylate, Meclofenamate, Mefenamic Acid, Nabumetone, Naproxen, Oxaprozin, Phenylbutazone, Piroxicam, Salsalate, Sodium Salicylate, Sulindac, Tenoxicam, Tiaprofenic Acid, Tolmetin. Examples of anti-inflammatories for ocular treatment are Diclofenac, Flurbiprofen, Indomethacin, Ketorolac, Rimexolone (generally for post-operative treatment). Examples of anti-inflammatories for non-infectious nasal applications are Beclomethaxone, and the like. Examples of soporifics (anti-insomnia/sleep inducing agents) such as those utilized for treatment of insomnia, are Alprazolam, Bromazepam, Diazepam, Diphenhydramine, Doxylamine, Estazolam, Flurazepam, Halazepam, Ketazolam, Lorazepam, Nitrazepam, Prazepam Quazepam, Temazepam, Triazolam, Zolpidem and Sopiclone, among others. Examples of sedatives are Diphenhydramine, Hydroxyzine, Methotrimeprazine, Promethazine, Propofol, Melatonin, Trimeprazine, and the like. Examples of sedatives and agents used for treatment of petit mal and tremors, among other conditions, are Amitriptyline HCl, Chlordiazepoxide, Amobarbital, Secobarbital, Aprobarbital, Butabarbital, Ethchiorvynol, Glutethimide, L-Tryptophan, Mephobarbital, MethoHexital Na, Midazolam HCl, Oxazepam, Pentobarbital Na, Phenobarbital, Secobarbital Na, Thiamylal Na, and many others. Agents used in the treatment of head trauma (Brain Injury/Ischemia) include Enadoline HCl (e.g. for treatment of severe head injury, orphan status, Warner Lambert). Examples of cytoprotective agents and agents for the treatment of menopause and menopausal symptoms are Ergotamine, Belladonna Alkaloids and Phenobarbitals. Examples of agents for the treatment of menopausal vasomotor symptoms are Clonidine, Conjugated Estrogens and Medroxyprogesterone, Estradiol, Estradiol Cypionate, Estradiol Valerate, Estrogens, conjugated Estrogens, esterified Estrone, Estropipate and Ethinyl Estradiol. Examples of agents for treatment of symptoms of Pre Menstrual Syndrome (PMS) are Progesterone, Progestin, Gonadotrophic Releasing Hormone, oral contraceptives, Danazol, Luprolide Acetate and Vitamin B6. Examples of agents for the treatment of emotional/psychiatric treatments are Tricyclic Antidepressants including Amitriptyline HCl (Elavil), Amitriptyline HCl, Perphenazine (Triavil) and Doxepin HCl (Sinequan). Examples of tranquilizers, anti-depressants and anti-anxiety agents are Diazepam (Valium), Lorazepam (Ativan), Alprazolam (Xanax), SSRI's (selective Serotonin reuptake inhibitors), Fluoxetine HCl (Prozac), Sertaline HCl (Zoloft), Paroxetine HCl (Paxil), Fluvoxamine Maleate (Luvox), Venlafaxine HCl (Effexor), Serotonin, Serotonin Agonists (Fenfluramine), and other over the counter (OTC) medications. Examples of anti-migraine agents are Imitrex and the like.

The amount of each active agent may be adjusted when, and if, additional agents with overlapping activities are included as discussed in this patent. The dosage of the active compounds, however, may vary depending on age, weight, and condition of the subject. Treatment may be initiated with a small dosage, e.g. less than the optimal dose, of the first active agent of the invention, whether an anti-inflammatory steroid or a ubiquinone, or both, and optionally other bioactive agents described above. This may be similarly done with the second active agent, until a desirable level is attained. Or vice versa, for example in the case of multivitamins and/or minerals, the subject may be stabilized at a desired level of these products and then administered the first active compound. The dose may be increased until a desired and/or optimal effect under the circumstances is reached. In general, the active agent is preferably administered at a concentration that will afford effective results without causing any unduly harmful or deleterious side effects, and may be administered either as a single unit dose, or if desired in convenient subunits administered at suitable times throughout the day. The second therapeutic or diagnostic agent(s) is (are) administered in amounts which are known in the art to be effective for the intended application. In cases where the second agent has an overlapping activity with the principal agent, the dose of one of the other or of both agents may

be adjusted to attain a desirable effect without exceeding a dose range which avoids untoward side effects. Thus, for example, when other analgesic and anti-inflammatory agents are added to the composition, they may be added in amounts known in the art for their intended application or in doses somewhat lower that when administered by themselves.

Pharmaceutical compositions and kits comprising an anti-sense oligo and/or the non-corticoid steroid and/or ubiquinone including doses effective to reduce expression of target protein(s) by binding specifically with DNA or mRNA either encoding, or regulating the expression of the target proteins in the cell so as to prevent its translation are also part of the present invention. Such compositions are provided in a suitable pharmaceutically or veterinarily acceptable carrier(s), e.g., sterile pyrogen-free saline solution either separately or in combination when intended for dual administration, e.g. in a kit where both first and second agent are administered on specified dates whereas only one is administered other days. The active agents may be formulated with a hydrophobic carrier capable of passing through a cell membrane, e.g., in a liposome, with the liposomes carried in a pharmaceutically acceptable aqueous carrier. The oligonucleotides may also be coupled to a substance which inactivates mRNA, such as a ribozyme. Such oligonucleotides may be administered to a subject to inhibit the activation of a target, such as the adenosine receptors, which subject is in need of such treatment for any of the reasons discussed herein. Furthermore, the pharmaceutical formulation may also contain chimeric molecules comprising anti-sense oligonucleotides attached to molecules which are known to be internalized by cells. These oligonucleotide conjugates utilize cellular uptake pathways to increase cellular concentrations of oligonucleotides. Examples of macromolecules used in this manner include transferrin, asialoglycoprotein (bound to oligonucleotides via polylysine) and streptavidin. In the pharmaceutical formulation, the anti-sense compound may be contained within a lipid particle or vesicle, such as a liposome or microcrystal. The particles may be of any suitable structure, such as unilamellar or plurilamellar, so long as the anti-sense oligonucleotide is contained therein. Positively charged lipids such as N- [1-(2, 3 -dioleoyloxy) propyl] -N, N, N-trimethylammoniumethylsulfate, or "DOTAP," are particularly preferred for such particles and vesicles. The preparation of such lipid particles is well known. See, e.g., U.S. Patent Nos. 4,880,635 to Janoff et al.; 4,906,477 to Kurono et al.; 4,911,928 to Wallach; 4,917,951 to Wallach; 4,920,016 to Allen et al.; 4,921,757 to Wheatley et al.; etc.

The active compounds provided in this patent are preferably administered to the subject as a pharmaceutical or veterinary composition. Pharmaceutical compositions for use in the present invention include formulations suitable for systemic and topical administration, including by inhalation, intrapulmonary infusion, nasal, respirable, oral, topical (including buccal, sublingual, dermal and intraocular), parenteral (including subcutaneous, intradermal, intramuscular, intravenous and intraarticular), rectal, vaginal, ophthalmic, otical, implantable, and transdermal and iontophoretic administration, among others. The compositions may conveniently be provided in bulk, or presented in unit or multiple unit dosage form, and may be prepared by any of the methods well known in the art.

The first and second active compounds may be administered to the lungs, i.e. intrapulmonarily, nasally, respirably or by inhalation, of a subject by any suitable means. A preferred method of administration is by generating an aerosol or spray comprised of nasal or respirable particles comprising the active compound. The thus administered particles are then inhaled by the subject, i.e. by inhalation, intrapulmonary drip, or nasal administration, or by direct administration into the airways or respiration. The respirable particles may be liquid or solid, and they are preferably in the range of about 0.05, about 0.5, about 1, about 2, about 2.5 to about 3.5, about 4, about 6, about 8, about 10 micron, and preferably about 1 to about 5 micron (respirable or inhalable particles), or about 10, about 15, about 20, about 30 to about 50, about 100, about 150, about 200, about 300, about 400, about 500 micron, preferably about 10 to about 50, about 100 micron for intrapulmonary instillation or nasal administration. As explained above, particles of non-respirable size that are included in the aerosol or spray tend to deposit in the throat and be swallowed, and the quantity of non-respirable particles in the aerosol is preferably minimized. For nasal administration or intrapulmonary instillation, particularly for newborn babies and infants, a particle size in the range of about 10 to about 50 microns is preferred to ensure deposition and retention in the nasal or pulmonary cavity. Liquid pharmaceutical compositions of the active compound for producing an aerosol or spray may be prepared by combining the active compound with a stable vehicle, such as sterile pyrogen free water. Solid particulate compositions containing respirable dry particles of micronized active compound may be prepared by grinding dry active compound with a mortar and pestle, and then passing the micronized composition through a 400 mesh screen to break up or separate out large agglomerates. Another method would include passing through a mill

and collecting the fine particles from the device for further classification. A solid particulate composition comprised of the active compound may optionally contain a dispersant that serves to facilitate the formation of an aerosol. A suitable dispersant is lactose, which may be blended with the active compound in any suitable ratio, e. g. a 1 to 2.5 ratio by weight. Again, other therapeutic and formulation compounds may also be included, such as a surfactant to improve the state of surfactant in the lung and help with the absorption of the active agent.

The dosage of the anti-sense compound administered will depend upon the disease being treated, the condition of the subject, the particular formulation, the route of administration, the timing of administration to a subject, etc. In general, intracellular concentrations of the oligonucleotide of from about 0.01, about 0.05, about 0.1, about 0.2, about 1 to about 5 μM, about 50 μM, about 100 μM or more, and more particularly about 0.2 to about 0.5 μM, are desired. For administration to a subject such as a human, a dosage of from about 0.01, about 0.1 or about 1 mg/Kg up to about 50, about 100, or about 150 mg/Kg and even higher doses are typically employed depending on the route of administration as is known in the art. Depending on the solubility of the particular formulation of active compound administered, the daily dose may be divided among one or several unit dose administrations. Administration of the anti-sense compounds may be carried out therapeutically (i.e., as a rescue treatment) or prophylactically. Aerosols of liquid particles comprising the active compound may be produced by any suitable means, such as with a nebulizer. See, e. g. U.S. Patent No. 4,501,729. Nebulizers are commercially available devices that transform solutions or suspensions of the active ingredient into a therapeutic aerosol mist either by means of acceleration of a compressed gas, typically air or oxygen, through a narrow venturi orifice or by means of ultrasonic agitation. Suitable compositions for use in nebulizer comprise the active ingredient in a liquid carrier or diluent, the active ingredient comprising about 0.05 up to about 40% w/w of the composition, preferably about 1 to less than about 20% w/w. The carrier is typically water or a dilute aqueous alcoholic solution, preferably made isotonic with body fluids by the addition of, for example sodium chloride. Other carriers, however, are also suitable as an artisan would know. Optional additives include preservatives if the composition is not prepared sterile. An example of a preservative is methyl hydroxybenzoate, and other agents such as antioxidants, flavoring agents, volatile oils, buffering agents and surfactants, however, may also be added.

In one preferred embodiment, the pharmaceutical composition may further comprise one or more bronchodilating agents, and one or more surfactants along with a carrier and formulation agents alternatively, these active agents may beadministred separately. Suitable surfactants or surfactant components for enhancing the uptake of the anti-sense oligonucleotides of the invention include synthetic and natural as well as full and truncated forms of surfactant protein A, surfactant protein B, surfactant protein C, surfactant protein D and surfactant Protein E, partially and fully saturated phosphatidylcholine (other than dipalmitoyl), dipalmitoylphosphatidylcholine, phosphatidylcholine, phosphatidylglycerol, phosphatidylinositol, phosphatidylethanolamine, phosphatidylserine; phosphatidic acid, ubiquinones, lysophosphatidylethanolamine, lysophosphatidylcholine, palmitoyl-lysophosphatidylcholine, dehydroepiandrosterone, dolichols, sulfatidic acid, glycerol-3-phosphate, dihydroxyacetone phosphate, glycerol, glycero-3-phosphocholine, dihydroxyacetone, palmitate, cytidine diphosphate (CDP) diacylglycerol, CDP choline, choline, choline phosphate; as well as natural and artificial lamellar bodies which are the natural carrier vehicles for the components of surfactant, omega-3 fatty acids, polyenic acid, polyenoic acid, lecithin, palmitinic acid, non-ionic block copolymers of ethylene or propylene oxides, polyoxypropylene, monomeric and polymeric, polyoxyethylene, monomeric and polymeric, poly (vinyl amine) with dextran and/or alkanoyl side chains, Brij 35, Triton X-100 and synthetic surfactants ALEC, Exosurf, Survan and Atovaquone, among others. These surfactants may be used either as a single, or as part of a multiple component, surfactant in a formulation, or as covalently bound additions to the 5' and/or 3' ends of the anti-sense oligo(s). Aerosols of solid particles comprising the active compound may likewise be produced with any solid particulate medicament aerosol generator. Aerosol generators for administering solid particulate medicaments to a subject produce particles which are respirable, as explained above, and generate a volume of aerosol containing a predetermined metered dose of a medicament at a rate suitable for human administration. One illustrative type of solid particulate aerosol generator is an insufflator. Suitable formulations for administration by insufflation include finely comminuted powders which may be delivered by means of an insufflator or taken into the nasal cavity in the manner of a snuff. In the insufflator, the powder (e.g., a metered dose thereof effective to carry out the treatments described herein) is contained in capsules or cartridges, typically made of gelatin or foil, which are either pierced or opened in situ and the powder delivered by air drawn through the device upon inhalation or by means of a manually-operated pump. The powder employed in the insufflator consists either solely of the active ingredient or of a powder

blend comprising the active ingredient, a suitable powder diluent, such as lactose, and an optional surfactant. The active ingredient typically comprises from about 0.1 to about 100 w/w of the formulation. A second type of illustrative aerosol generator comprises a metered dose inhaler. Metered dose inhalers are pressurized aerosol dispensers, typically containing a suspension or solution formulation of the active ingredient in a liquefied propellant. During the use these devices discharge the formulation through a valve adapted to deliver a metered volume, typically from about 10:1 to about 150:l, to produce a fine particle spray containing the active ingredient. Suitable propellants include certain chlorofluorocarbon compounds, for example, dichlorodifluoromethane, trichlorofluoromethane, dichlorotetrafluoroethane and mixtures thereof. The formulation may additionally contain one or more co-solvents, for example, ethanol, surfactants, such as oleic acid or sorbitan trioleate, antioxidants and suitable flavoring agents. The aerosol, whether formed from solid or liquid particles, may be produced by the aerosol generator for example at a rate of from about 10, about 30, about 70 to about 100, about 150, about 150 liters per minute, more preferably from about 30 to 150 liters per minute, and most preferably about 60 liters per minute. Aerosols containing greater amounts of medicament, however, may be administered more rapidly as is known in the art.

Aerosols of solid particles comprising the active compound may likewise be produced with any sold particulate medicament aerosol generator. Aerosol and spray generators for administering solid particulate medicaments to a subject, comprise product particles that are respirable or inhalable, and they generate a volume of aerosol containing a predetermined metered dose of a medicament at a rate suitable for human administration. Examples of such aerosol and spray generators include metered dose inhalers and insufflators known in the art. Liquid pharmaceutical.compositions of active compound for producing an aerosol can be prepared by combining the anti-sense compound with the anti-inflammatory steroid(s) and/or the ubiquinone(s) and a suitable vehicle, such as sterile pyrogen free water. Other therapeutic compounds and formulation components may optionally be included as well. Solid particulate compositions containing respirable dry particles of micronized anti-sense compound may be prepared as known in the art, and generally described above, and then passing the micronized composition through a 400 mesh screen to break up or separate out large agglomerates.

Compositions suitable for oral administration may be presented in discrete units, such as capsules, cachets, lozenges, or tablets, each containing a pre-determined amount of the first and second active compounds; as a powder or granules; as a solution or a suspension in an aqueous or non-aqueous liquid; or as an oil-in-water or water-in-oil emulsion. Such compositions may be prepared by any suitable method of pharmacy that includes the step of bringing into association the active compounds and a suitable carrier. In general, the compositions of the invention are prepared by uniformly and intimately admixing the active compounds with a liquid or finely divided solid carrier, or both, and then, if necessary, shaping the resulting mixture. For example, tablet may be prepared by compressing or molding a powder or granules containing the active compound(s) alone, or optionally with one or more accessory ingredients. Compressed tablets may be prepared by compressing, in a suitable machine, the compound in a free-lowing form, such as a powder or granules optionally mixed with a binder, lubricant, inert diluent, and/or surface active/dispensing agent(s) or surfactants. Molded tablets may be made by molding, in a suitable machine, the powdered compound(s) moistened with an inert liquid binder. Compositions for oral administration may optionally include enteric coatings known in the art to prevent degradation of the compositions in the stomach and provide release of the drug in the small intestine.

Compositions suitable for buccal or sub-lingual administration include lozenges comprising the active compound in a flavored base, usually sucrose and acacia or tragacanth, and pastilles comprising the compound in an inert base such as gelatin and glycerin or sucrose and acacia.

Compositions suitable for parenteral administration comprise sterile aqueous and non-aqueous injection solutions, suspensions or emulsions of the active compound, which preparations are preferably isotonic with the blood of the intended recipient. These preparations may contain anti-oxidants, buffers, surfactants, bacteriostats, solutes which render the compositions isotonic with the blood of the intended recipient, and other formulation components known in the art. Aqueous and non-aqueous sterile suspensions may include suspending agents and thickening agents. The compositions may be presented in unit-dose or multi-dose containers, for example sealed ampoules and vials, and may be stored in a freeze-dried (lyophilized) condition requiring only the addition of the sterile liquid carrier, for example, saline or water-for-injection immediately prior to use. Extemporaneous injection solutions, suspensions and emulsions may be prepared from sterile powders, granules and tablets of the kind previously described.

Compositions suitable for topical application to the skin preferably take the form of an ointment, cream, lotion, paste, gel, spray, aerosol, or oil, although others are also suitable. Carriers that may be used include vaseline, lanoline, polyethylene glycols, alcohols, transdermal enhancers, and combinations of two or more thereof.

Compositions suitable for rectal and vaginal administration are also included and may be prepared by methods known in the art.

Compositions suitable for transdermal administration may be presented as discrete patches adapted to remain in intimate contact with the epidermis of the recipient for a prolonged period of time. Compositions suitable for transdermal administration may also be delivered by iontophoresis. See, e.g. Pharmaceutical Research 3:318 (1986). They typically take the form of an optionally buffered aqueous solution of the active compound containing appropriate ions to facilitate the iontophoretic delivery of the agent.

The relevant disclosures of all scientific publications and patent references cited in this patent are specifically intended to be incorporated herein by reference, particularly in reference to preparatory methods and technologies which are enabling of the invention. The following examples are provided to illustrate the present invention, and should not be construed as limiting thereon.

EXAMPLES

In the following examples, μM means micromolar, ml means milliliters, μm means micrometers, mm means millimeters, cm means centimeters, EC means degrees Celsius, μg means micrograms, mg means milligrams, g means grams, kg means kilograms, M means molar, and h or hr. means hours.

Example 1: Design and Synthesis of Anti-sense Oligonucleotides

The design of anti-sense oligonucleotides against the A_1 and A_3 adenosine receptors may require the solution of the complex secondary structure of the target A_1 receptor mRNA and the target A_3 receptor mRNA. After generating this structure, anti-sense nucleotide are designed which target regions of mRNA which might be construed to confer functional activity or stability to the mRNA and which optimally may overlap the initiation codon. Other target sites are readily usable. As a demonstration of specificity of the anti-sense effect, other oligonucleotides not totally complementary to the target mRNA, but containing identical nucleotide compositions on a w/w basis, are included as controls in anti-sense experiments.

The mRNA secondary structure of the adenosine A_1 receptor was analyzed and used as described above. to design a phosphorothioate anti-sense oligonucleotide. The anti-sense oligonucleotide which was synthesized was designated HAdA$_1$AS and had the following sequence: **5' -GAT GGA GGG CGG CAT GGC GGG-3' (SEQ ID NO:9370).** As a control, a mismatched phosphorothioate anti-sense nucleotide designated HAdAlMM1 was synthesized with the following sequence: **5' -GTA GCA GGC GGG GAT GGG GGC-3' (SEQ ID NO:9371).** Each oligonucleotide had identical base content and general sequence structure. Homology searches in GENBANK (release 85.0) and EMBL (release 40.0) indicated that the anti-sense oligonucleotide was specific for the human and rabbit adenosine A_1 receptor genes, and that the mismatched control was not a candidate for hybridization with any known gene sequence.

The secondary structure of the adenosine A_3 receptor mRNA was similarly analyzed and used as described above to design two phosphorothioate anti-sense oligonucleotides. The first anti-sense oligonucleotide (HAdA3AS1) synthesized had the following sequence: **5' -GTT GTT GGG CAT CTT GCC-3' (SEQ ID NO:9372).** As a control, a mismatched phosphorothioate anti-sense oligonucleotide (HAdA3MM1) was synthesized, having the following sequence: **5' -GTA CTT GCG GAT CTA GGC-3' (SEQ ID NO:9373).** A second phosphorothioate anti-sense oligonucleotide (HAdA3AS2) was also designed and synthesized, having the following sequence: **5' -GTG GGC CTA GCT CTC GCC-3' (SEQ ID NO:9374).** Its control oligonucleotide (HAdA3MM2) had the sequence: **5' -GTC GGG GTA CCT GTC GGC-3' (SEQ ID NO:9375).** Phosphorothioate oligonucleotides were synthesized on an Applied Biosystems Model 396 Oligonucleotide Synthesizer, and purified using NENSORB chromatography (DuPont, MD).

Example 2: In Vivo Testing of Adenosine A_1 Receptor Anti-sense Oligos

The anti-sense oligonucleotide against the human A_1 receptor (**SEQ ID NO:9370**) described above. was tested for efficacy in an in vitro model utilizing lung adenocarcinoma cells HTB-54. HTB-54 lung adenocarcinoma cells were demonstrated to express the A_1 adenosine receptor using standard northern blotting procedures and

receptor probes designed and synthesized in the laboratory.

HTB-54 human lung adenocarcinoma cells (106/100 mm tissue culture dish) were exposed to 5.0 :M HAdA1AS or HAdA1MM1 for 24 hours, with a fresh change of media and oligonucleotides after 12 hours of incubation. Following 24 hour exposure to the oligonucleotides, cells were harvested and their RNA extracted by standard procedures. A 21-mer probe corresponding to the region of mRNA targeted by the anti-sense (and therefore having the same sequence as the anti-sense, but not phosphorothioated) was synthesized and used to probe northern blots of RNA prepared from HAdA1AS-treated, HAdA1MM1-treated and non-treated HTB-54 cells. These blots showed clearly that HAdA1AS but not HAdA1MM1 effectively reduced human adenosine receptor mRNA by >50%. This result showed that HAdA1AS is a good candidate for an anti-asthma drug since it depletes intracellular mRNA for the adenosine A_1 receptor, which is involved in asthma.

<u>Example 3</u>: **In Vivo Efficacy of Adenosine A_1 Receptor Anti-sense Oligos**

A fortuitous hoology between the rabbit and human DNA sequences within the adenosine A_1 gene overlapping the initiation codon permitted the use of the phosphorothioate anti-sense oligonucleotides initially designed for use against the human adenosine A_1 receptor in a rabbit model. Neonatal New Zealand white Pasteurella-free rabbits were immunized intraperitoneally within 24 hours of birth with 312 antigen units/ml house dust mite (D. farinae) extract (Berkeley Biologicals, Berkeley, CA), mixed with 10% kaolin. Immunizations were repeated weekly for the first month and then biweekly for the next 2 months. At 3-4 months of age, eight sensitized rabbits were anesthetized and relaxed with a mixture of ketamine hydrochloride (44 mg/kg) and acepromazine maleate (0.4 mg/kg) administered intramuscularly. The rabbits were then laid supine in a comfortable position on a small molded, padded animal board and intubated with a 4.0-mm intratracheal tube (Mallinkrodt, Inc., Glens Falls, NY). A polyethylene catheter of external diameter 2.4 mm with an attached latex balloon was passed into the esophagus and maintained at the same distance (approximately 16 cm) from the mouth throughout the experiments. The intratracheal tube was attached to a heated Fleisch pneumotachograph (size 00; DOM Medical, Richmond, VA), and flow was measured using a Validyne differential pressure transducer (Model DP-45161927; Validyne Engineering Corp., Northridge, CA) driven by a Gould carrier amplifier (Model 11-4113; Gould Electronic, Cleveland, OH). The esophageal balloon was attached to one side of the differential pressure transducer, and the outflow of the intratracheal tube was connected to the opposite side of the pressure transducer to allow recording of transpulmonary pressure. Flow was integrated to give a continuous tidal volume, and measurements of total lung resistance (RL) and dynamic compliance (Cdyn) were calculated at isovolumetric and flow zero points, respectively, using an automated respiratory analyzer (Model 6; Buxco, Sharon, CT). Animals were randomized and on Day 1 pretreatment values for PC_{50} were obtained for aerosolized adenosine. Anti-sense (HAdA1AS) or mismatched control (HAdA1MM) oligonucleotides were dissolved in sterile physiological saline at a concentration of 5000 μg (5 mg) per 1.0 ml. Animals were subsequently administered the aerosolized anti-sense or mismatch oligonucleotide via the intratracheal tube (approximately 5000 :g in a volume of 1.0 ml), twice daily for two days. Aerosols of either saline, adenosine, or anti-sense or mismatch oligonucleotides were generated by an ultrasonic nebulizer (DeVilbiss, Somerset, PA), producing aerosol droplets 80% of which were smaller than 5 :m in diameter. In the first arm of the experiment, four randomly selected allergic rabbits were administered anti-sense oligonucleotide and four the mismatched control oligonucleotide. On the morning of the third day, PC_{50} values (the concentration of aerosolized adenosine in mg/ml required to reduce the dynamic compliance of the bronchial airway 50% from the baseline value) were obtained and compared to PC_{50} values obtained for these animals prior to exposure to oligonucleotide. Following a 1 week interval, animals were crossed over, with those previously administered mismatch control oligonucleotide now administered anti-sense oligonucleotide, and those previously treated with anti-sense oligonucleotide now administered mismatch control oligonucleotide. Treatment methods and measurements were identical to those employed in the first arm of the experiment. It should be noted that in six of the eight animals treated with anti-sense oligonucleotide, adenosine-mediated bronchoconstriction could not be obtained up to the limit of solubility of adenosine, 20 mg/ml. For the purpose of calculation, PC_{50} values for these animals were set at 20 mg/ml. The values given therefore represent a minimum figure for anti-sense effectiveness. Actual effectiveness was higher. The results of this experiment are illustrated in Table 5 below.

Table 5: Effect of Adenosine A_1 Receptor Anti-sense Oligo upon PC50 Values in Asthmatic Rabbits

Mismatch Control		A_1 Receptor Anti-sense Oligo	
Pre Oligonucleotide	**Post Oligonucleotide**	**Pre Oligonucleotide**	**Post Oligonucleotide**
3.56 ± 1.02	5.16 ± 1.03	2.36 ± 0.68	>19.5 ± 0.34**

The results are presented as the mean (n=8) ± SEM.
The significance was determined by repeated-measures analysis of variance (ANOVA), and Tukey's protected test.
**Significantly different from all other groups, p<0.01.

In both arms of the experiment, animals receiving the anti-sense oligonucleotide showed an order of magnitude increase in the dose of aerosolized adenosine required to reduce dynamic compliance of the lung by 50%. No effect of the mismatched control oligonucleotide upon PC_{50} values was observed. No toxicity was observed in any animal receiving either anti-sense or control inhaled oligonucleotide. These results show clearly that the lung has exceptional potential as a target for anti-sense oligonucleotide-based therapeutic intervention in lung disease. They further show, in a model system which closely resembles human asthma, that downregulation of the adenosine A_1 receptor largely eliminates adenosine-mediated bronchoconstriction in asthmatic airways. Bronchial hyperresponsiveness in the allergic rabbit model of human asthma is an excellent endpoint for anti-sense intervention since the tissues involved in this response lie near to the point of contact with aerosolized oligonucleotides, and the model closely simulates an important human disease.

Example 4: Specificity of A_1-adenosine Receptor Anti-sense Oligonucleotide

At the conclusion of the cross-over experiment of Example 3 above, airway smooth muscle from all rabbits was quantitatively analyzed for adenosine A_1 receptor number. As a control for the specificity of the anti-sense oligonucleotide, adenosine A_2 receptors, which should not have been affected, were also quantified. Airway smooth muscle tissue was dissected from each rabbit and a membrane fraction prepared according to the method of Kleinstein et al. (Kleinstein, J. and Glossmann, H., Naunyn-Schmiedeberg's Arch. Pharmacol. 305: 191-200 (1978)), the relevant portion of which is hereby incorporated in its entirety by reference, with slight modifications. Crude plasma membrane preparations were stored at -70EC until the time of assay. Protein content was determined by the method of Bradford (M. Bradford, Anal. Biochem. 72, 240-254 (1976), the relevant portion of which is hereby incorporated in its entirety by reference). Frozen plasma membranes were thawed at room temperature and were incubated with 0.2 U/ml adenosine deaminase for 30 minutes at 37EC to remove endogenous adenosine. The binding of [^{3}H] DPCPX (A_1 receptor-specific) or [^{3}H] CGS-21680 (A_1 receptor-specific) was measured as previously described by Ali et al. (Ali, S. et al., J. Pharmacol. Exp. Ther. 268, Am. J. Physiol 266, L271-277 (1994), the relevant portion of which is hereby incorporated in its entirety by reference). The animals treated with adenosine A_1 anti-sense oligonucleotide in the cross-over experiment had a nearly 75% decrease in A_1 receptor number compared to controls, as assayed by specific binding of the A_1-specific antagonist DPCPX. There was no change in adenosine A_2 receptor number, as assayed by specific binding of the A_2 receptor-specific agonist 2- [p- (2-carboxyethyl)-phenethylamino] -5' - (N-ethylcarboxamido) adenosine (CGS-21680). This is illustrated in Table 6 below.

Table 6: Specificity of Action of Adenosine A_1 Receptor Oligonucleotide Anti-sense

	Mismatch Control Oligonucleotide	A_1 Anti-sense Oligonucleotide
A_1-Specific Binding	1105 ± 48**	293 ± 18
A_2-Specific Binding	302 ± 22 .	442 ± 171

The results are presented as the mean (n = 8) ± SEM.
The significance was determined by repeated-measures analysis of variance (ANOVA), and Tukey's protected test.
**Significantly different from mismatch control, p<0.01.

The above results illustrate the effectiveness of anti-sense oligonucleotides in treating airway disease. Since the anti-sense oligos described above. eliminate the receptor systems responsible for adenosine-mediated bronchoconstriction, it may be less imperative to eliminate adenosine from them. However, it would be preferable to eliminate adenosine from even these oligonucleotides to reduce the dose needed to attain a similar effect. Described

above are other anti-sense oligonucleotides targeting mRNA of proteins involved in inflammation. Adenosine has been eliminated from their nucleotide content to prevent its liberation during degradation.

Example 5: **Anti-sense Oligos directed to other Target Nucleic Acids**

This work was conducted to demonstrate that the present invention is broadly applicable to anti-sense oligonucleotides ("oligos") specific to nucleic acid targets broadly. The following experimental studies were conducted to show that the method of the invention is broadly suitable for use with anti-sense oligos designed as taught by this application and targeted to any and all adenosine receptor mRNAs. For this purpose, various anti-sense oligos were prepared to adenosine receptor mRNAs exemplified by the adenosine A_1, A_{2b} and A_3 receptor mRNAs. Anti-sense Oligo I was disclosed above (**SEQ ID NO:9370**).Five additional anti-sense phosphorothioate oligos were designed and synthesized as indicated above.

1- Oligo II (**SEQ ID NO: 9376**) also targeted to the adenosine A_1 receptor, but to a different region than Oligo I.

2- Oligo V (**SEQ ID NO: 9379**) targeted to the adenosine A_{2b} receptor.

3- Oligos III (**SEQ ID NO: 9377**) and IV (**SEQ ID NO: 9378**) targeted to different regions of the adenosine A_3 receptor.

4- Oligo I-PD (**SEQ ID NO: 11050**)(a phosphodiester oligo of the same sequence as Oligo I).

These anti-sense oligos were designed for therapy on a selected species as described above and are generally specific for that species, unless the segment of the target mRNA of other species happens to contain a similar sequences. All anti-sense oligos were prepared as described below, and tested in vivo in a rabbit model for bronchoconstriction, inflammation and allergy, which have breathing difficulties and impeded lung airways, as is the case in ailments such as asthma, as described in the above-identified application.

Example 6: **Design & Sequences of other Anti-sense Oligos**

Six oligos and their effects in a rabbit model were studied and the results of these studies are reported and discussed below. Five of these oligos were selected for this study to complement the data on Oligo I (**SEQ ID NO: 9370**) provided in Examples 1 to 4 above. This oligo is anti-sense to one region of the adenosine A_1 receptor mRNA. The oligos tested are identified as anti-sense Oligos I (**SEQ ID NO: 9370**) and II (**SEQ ID NO: 9376**) targeted to a different region of the adenosine A_1 receptor mRNA, Oligo V (**SEQ ID NO:9377**) targeted to the adenosine A_{2b} receptor mRNA, and anti-sense Oligos III and IV (**SEQ ID NOS: 9378and 9379**) targeted to two different regions of the adenosine A_3 receptor mRNA. The sixth oligo (Oligo I-PD) is a phosphodiester version of Oligo I (**SEQ ID NO:9370**). The design and synthesis of these anti-sense oligos was performed in accordance with Example 1 above.

(I) **Anti-sense Oligo I**

The anti-sense oligonucleotide I referred to in Examples 1 to 4 above is targeted to the human A_1 adenosine receptor mRNA (EPI 2010). Anti-sense oligo I is 21 nucleotide long, overlaps the initiation codon, and has the following sequence:5'-GAT GGA GGG CGG CAT GGC GGG-3'(SEQ.ID NO:9370). The oligo I was previously shown to abrogate the adenosine-induced bronchoconstriction in allergic rabbits, and to reduce allergen-induced airway obstruction and bronchial hyperresponsiveness (BHR), as discussed above and shown by Nyce, J. W. & Metzger, W. J., Nature, 385:721 (1977), the relevant portions of which reference are incorporated in their entireties herein by reference.

(II) **Anti-sense Oligo II**

A phosphorothioate anti-sense oligo (**SEQ ID NO:9376**) was designed in accordance with the invention to target the rabbit adenosine A_1 receptor mRNA region +936 to +956 relative to the initiation codon (start site). The anti-sense oligo II is 21 nucleotide long, and has the following sequence: **5'-CTC GTC GCC GTC GCC GGC GGG-3' (SEQ ID NO:9376)**.

(III) **Anti-sense Oligo III**

A phosphorothioate anti-sense oligo other than that provided in Example 1 above (**SEQ ID NO:9377**) was designed in accordance with the invention to target the anti-sense A_3 receptor mRNA region +3 to + 22 relative to the initiation codon start site. The anti-sense oligo III is 20 nucleotide long, and has the following sequence: **5'-GGG TGG TGC TAT TGT CGG GC-3' (SEQ ID NO:9377)**.

(IV) **Anti-sense Oligo IV**

Yet another phosphorothioate anti-sense oligo (**SEQ ID NO:9378**) was designed in accordance with the invention to target the adenosine A_3 receptor mRNA region + 386 to + 401 relative to the initiation codon (start site). The anti-sense oligo IV is 15 nucleotide long, and has the following sequence: **5'-GGC CCA GGG CCA**

GCC-3' (SEQ ID NO:9378)

(V) Anti-sense Oligo V

A phosphorothioate anti-sense oligo (**SEQ ID NO:9379**) was designed in accordance with the invention to target the adenosine A_{2b} receptor mRNA region -21 to -1 relative to the initiation codon (start site). The anti-sense oligonucleotide V is 21 nucleotide long, and has the following sequence: **5'-GGC CGG GCC AGC CGG GCC CGG-3' (SEQ ID NO:9379).**

(VI) A_1 Mismatch Oligos

Two different mismatched oligonucleotides having the following sequences were used as controls for anti-sense oligo I(**SEQ ID NO: 1**) described in Example 5 above: A_1 **MM2:5'-GTA GGT GGC GGG CAA GGC GGG-3' (SEQ ID NO:12490), and** A_1 **MM3:5'-GAT GGA GGC GGG CAT GGC GGG-3' (SEQ ID NO:12489).** Anti-sense oligo I and the two mismatch anti-sense oligos had identical base content and general sequence structure. Homology searches in GENBANK (release 85.0) and EMBL (release 40.0) indicated that the anti-sense oligo I was specific, not only for the human, but also for the rabbit, adenosine A_1 receptor genes, and that the mismatched controls were not candidates for hybridization with any known human or animal gene sequence.

(VII) Anti-sense Oligo A_1-PD (Oligo VI)

A phosphodiester anti-sense oligo (**Oligo VI; SEQ ID NO:9370**) having the same nucleotide sequence as Oligo I was designed as disclosed in the above-identified application. Anti-sense oligo I-PD is 21 nucleotide long, overlaps the initiation codon, and has the following sequence: 5'- GAT GGA GGG CGG CAT GGC GGG-3' (**SEQ ID NO:9370**).

(III) Controls

Each rabbit was administered 5.0 ml aerosolized sterile saline following the same schedule as for the anti-sense oligos in (II), (III), and (IV) above.

<u>Example 7</u>: Synthesis of Anti-sense Oligos

Phosphorothioate anti-sense oligos having the sequences described in (a) above, were synthesized on an Applied Biosystems Model 396 Oligonucleotide Synthesizer, and purified using NENSORB chromatography (DuPont, DE). TETD (tetraethylthiuram disulfide) was used as the sulfurizing agent during the synthesis. Anti-sense oligonucleotide II (**SEQ ID NO:9376**), anti-sense oligonucleotide III (**SEQ ID NO: 9377**) and anti-sense oligonucleotide IV (**SEQ ID NO: 9378**) were each synthesized and purified in this manner.

<u>Example 8</u>: Preparation of Allergic Rabbits

Neonatal New Zealand white Pasturella-free rabbits were immunized intraperitoneally within 24 hours of birth with 0.5 ml of 312 antigen units/ml house dust mite (*D. farinae*) extract (Berkeley Biologicals, Berkeley, CA) mixed with 10% kaolin as previously described (Metzger, W. J., in Late Phase Allergic Reactions, Dorsch, W., Ed., CRC Handbook, pp. 347-362, CRC Press, Boca Raton (1990); Ali, S., Metzger, W. J. and Mustafa, S. J., Am. J. Resp. Crit. Care Med. 149: 908 (1994)), the relevant portions of which are incorporated in their entireties here by reference. Immunizations were repeated weekly for the first month and then biweekly until the age of 4 months. These rabbits preferentially produce allergen-specific IgE antibody, typically respond to aeroallergen challenge with both an early and late-phase asthmatic response, and show bronchial hyper responsiveness (BHR). Monthly intraperitoneal administration of allergen (312 units dust mite allergen, as above) continues to stimulate and maintain allergen-specific IgE antibody and BHR. At 4 months of age, sensitized rabbits were prepared for aerosol administration as described by Ali et al. (Ali, S., Metzger, W. J. and Mustafa, S. J., Am. J. Resp. Crit. Care Med. 149 (1994)), the relevant section being incorporated in its entirety here by reference.

<u>DOSE-RESPONSE STUDIES</u>

<u>Example 9</u>: Experimental Setup

Aerosols of either adenosine (0-20 mg/ml), or anti-sense or one of two mismatch oligonucleotides (5 mg/ml) were separately prepared with an ultrasonic nebulizer (Model 646, DeVilbiss, Somerset, PA), which produced aerosol droplets, 80% of which were smaller than 5:m in diameter. Equal volumes of the aerosols were administered directly to the lungs *via* an intratracheal tube. The animals were randomized, and administered aerosolized adenosine. Day 1 pre-treatment values for sensitivity to adenosine were calculated as the dose of adenosine causing a 50% loss of compliance (PC_{50} Adenosine). The animals were then administered either the aerosolized anti-sense or one of the mismatch anti-sense oligos via the intratracheal tube (5 mg/1.0 ml), for 2 minutes, twice daily for 2

days (total dose, 20 mg). Post-treatment PC_{50} values were recorded (post-treatment challenge) on the morning of the third day. The results of these studies are provided in Example 21 below.

Example 10: Crossover Experiments

For some experiments utilizing anti-sense oligo I (**SEQ ID NO: 9370**) and a corresponding mismatch control oligonucleotide A1MM2, following a 2 week interval, the animals were crossed over, with those previously administered the mismatch control A_1MM2, now receiving the anti-sense oligo I, and those previously treated with the anti-sense oligo I, now receiving the mismatch control A_1MM2 oligo. The number of animals per group was as follows. For mismatch A_1MM2 (Control 1), n=7, since one animal was lost in the second control arm of the experiment due to technical difficulties, for mismatch A_1MM3 n=4 (Control 2) and for A_1AS anti-sense oligo I, n=8. The A_1MM3 oligo-treated animals were analyzed separately and were not part of the cross-over experiment. The treatment methods and measurements employed following the cross-over were identical to those employed in the first arm of the experiment. In 6 of the 8 animals treated with the anti-sense oligo I (**SEQ ID NO: 9370**), no PC_{50} value could be obtained for adenosine doses of up to 20 mg/ml, which is the limit of solubility of adenosine. Accordingly, the PC_{50} values for these animals were assumed to be 20 mg/ml for calculation purposes. The values given, therefore, represent a minimum figure for the effectiveness of the anti-sense oligonucleotides of the invention. Other groups of allergic rabbits (n=4 for each group) were administered 0.5 or 0.05 mg doses of the anti-sense oligo I (**SEQ ID NO: 9370**), or the A_1MM2 oligo in the manner and according to the schedule described above (the total doses being 2.0 or 0.2 mg). The results of these studies are provided in Example 22 below.

Example 11: Anti-sense Oligo Formulation

Each one of anti-sense oligos were separately solubilized in an aqueous solution and administered as described for anti-sense oligo I (**SEQ ID NO:9370**) in (e) above, in four 5 mg aliquots (20 mg total dose) by means of a nebulizer via endotracheal tube, as described above. The results obtained for anti-sense oligo I and its mismatch controls confirmed that the mismatch controls are equivalent to saline, as described in Example 19 below and in Table 1 of Nyce & Metzger, Nature 385: 721-725 (1997). Because of this finding, saline was used as a control for pulmonary function studies employing anti-sense oligos II, III and IV (**SEQ ID NO: 9376, 9377 and 9378**).

Example 12: Specificity of Oligo I for Adenosine A_1 Receptor (Receptor Binding Studies)

Tissue from airway smooth muscle was dissected to primary, secondary and tertiary bronchi from rabbits which had been administered 20 mg oligo I (**SEQ ID NO: 9370**) in 4 divided doses over a period of 48 hours as described above. A membrane fraction was prepared according to the method of Ali et al. (Ali, S., et al., Am. J. Resp. Crit. Care Med. 149: 908 (1994), the relevant section relating to the preparation of the membrane fraction is incorporated in its entirety hereby by reference). The protein content was determined by the method of Bradford and plasma membranes were incubated with 0.2 U/ml adenosine deaminase for 30 minutes at 37EC to remove endogenous adenosine. See, Bradford, M. M. Anal. Biochem. 72, 240-254 (1976), the relevant portion of which is hereby incorporated in its entirety by reference. The binding of [^{3}H]DPCPX, [^{3}H]NPC17731, or [^{3}H]CGS-21680 was measured as described by Jarvis et al. See, Jarvis, M.F., et al., Pharmacol. Exptl. Ther. 251, 888-893 (1989), the relevant portion of which is fully incorporated herein by reference. The results of this study are shown in Table 8 and discussed in Example 20 below.

Example 13: Pulmonary Function Measurements (Compliance c_{DYN} and Resistance)

At 4 months of age, the immunized animals were anesthetized and relaxed with 1.5 ml of a mixture of ketamine HCl (35 mg/kg) and acepromazine maleate (1.5 mg/kg) administered intramuscularly. After induction of anesthesia, allergic rabbits were comfortably positioned supine on a soft molded animal board. Salve was applied to the eyes to prevent drying, and they were closed. The animals were then intubated with a 4.0 mm intermediate high-low cuffed Murphy 1 endotracheal tube (Mallinckrodt, Glen Falls, NY), as previously described by Zavala and Rhodes. See, Zavala and Rhodes, Proc. Soc. Exp. Biol. Med. 144: 509-512 (1973), the relevant portion of which is incorporated herein by reference in its entirety. A polyethylene catheter of OD 2.4 mm (Becton Dickinson, Clay Adams, Parsippany NJ) with an attached thin-walled latex balloon was passed into the esophagus and maintained at the same distance (approximately 16 cm) from the mouth throughout the experiment. The endotracheal tube was attached to a heated Fleisch pneumotach (size 00; DEM Medical, Richmond, VA), and the flow (v) measured using

a Validyne differential pressure transducer (Model DP-45-16-1927, Validyne Engineering, Northridge, CA), driven by a Gould carrier amplifier (Model 11-4113, Gould Electronics, Cleveland, OH). An esophageal balloon was attached to one side of the Validyne differential pressure transducer, and the other side was attached to the outflow of the endotracheal tube to obtain transpulmonary pressure (P_{tp}). The flow was integrated to yield a continuous tidal volume, and the measurements of total lung resistance (R_t) and dynamic compliance (C_{dyn}) were made at isovolumetric and zero flow points. The flow, volume and pressure were recorded on an eight channel Gould 2000 W high-frequency recorder and C_{dyn} was calculated using the total volume and the difference in P_{tp} at zero flow, and R_t was calculated as the ratio of Ptp and V at midtidal lung volumes. These calculations were made automatically with the Buxco automated pulmonary mechanics respiratory analyzer (Model 6, Buxco Electronics, Sharon, CT), as previously described by Giles et al. See, Giles et al., Arch. Int. Pharmacodyn. Ther. 194: 213-232 (1971), the relevant portion of which describing these calculations is incorporated in toto hereby by reference. The results obtained upon administration of oligo II on allergic rabbits are shown and discussed in Example 26 below.

Example 14: Measurement of Bronchial Hyperresponsiveness (BHR)

Each allergic rabbit was administered histamine by aerosol to determine their baseline hyperresponsiveness. Aerosols of either saline or histamine were generated using a DeVilbiss nebulizer (DeVilbiss, Somerset, PA) for 30 seconds and then for 2 minutes at each dose employed. The ultrasonic nebulizer produced aerosol droplets of which 80% were <5 micron in diameter. The histamine aerosol was administered in increasing concentrations (0.156 to 80 mg/ml) and measurements of pulmonary function were made after each dose. The B4R was then determined by calculating the concentration of histamine (mg/ml) required to reduce the C_{dyn} 50% from baseline ($PC_{50\ Histamine}$).

Example 15: Cardiovascular Effect of Anti-sense Oligo I

The measurement of cardiac output and other cardiovascular parameters using CardiomaxJ utilizes the principal of thermal dilution in which the change in temperature of the blood exiting the heart after a venous injection of a known volume of cool saline is monitored. A single rapid injection of cool saline was made into the right atrium via cannulation of the right jugular vein, and the corresponding changes in temperature of the mixed injectate and blood in the aortic arch were recorded via cannulation of the carotid artery by a temperature-sensing miniprobe. Twelve hours after the allergic rabbits had been treated with aerosols of oligo I (EPI 2010; **SEQ ID NO: 9370**) as described in (d) above, the animals were anesthetized with 0.3 ml/kg of 80% Ketamine and 20% Xylazine. This time point coincides with previous data showing efficacy for **SEQ ID NO: 9370**, as is clearly shown by Nyce & Metzger, (1997), supra, the pertinent disclosure being incorporated in its entirety here by reference. A thermocouple was then inserted into the left carotid artery of each rabbit, and was then advanced 6.5 cm and secured with a silk ligature. The right jugular vein was then cannulated and a length of polyethylene tubing was inserted and secured. A thermodilution curve was then established on a CardiomaxJ II (Columbus Instruments, Ohio) by injecting sterile saline at 20EC to determine the correctness of positioning of the thermocouple probe. After establishing the correctness of the position of the thermocouple, the femoral artery and vein were isolated. The femoral vein was used as a portal for drug injections, and the femoral artery for blood pressure and heart rate measurements. Once constant baseline cardiovascular parameters were established, CardiomaxJ measurements of blood pressure, heart rate, cardiac output, total peripheral resistance, and cardiac contractility were made.

Example 16: Duration of Action of Oligo I (SEQ ID NO: 9370)

Eight allergic rabbits received initially increasing log doses of adenosine by means of a nebulizer via an intra-tracheal tube as described in (f) above, beginning with 0.156 mg/ml until compliance was reduced by 50% ($PC_{50\ Adenosine}$) to establish a baseline. Six of the rabbits then received four 5 mg aerosolized doses of (**SEQ ID NO: 9370**) as described above. Two rabbits received equivalent amounts of saline vehicle as controls. Beginning 18 hours after the last treatment, the $PC_{50\ Adenosine}$ values were tested again. After this point, the measurements were continued for all animals each day, for up to 10 days. The results of this study are discussed in Example 25 below.

Example 17: Reduction of Adenosine A_{2b} Receptor Number by Anti-sense Oligo V

Sprague Dawley rats were administered 2.0 mg respirable anti-sense oligo V (**SEQ ID NO:9379**) three times over two days using an inhalation chamber as described above. Twelve hours after the last administration, lung parenchymal tissue was dissected and assayed for adenosine A_{2b} receptor binding using [311]-NECA as described by Nyce & Metzger (1997), supra. Controls were conducted by administration of equal volumes of saline.

The results are significant at $p<0.05$ using Student's paired t test, and are discussed in Example 28 below.

Example 18: ***Comparison of Oligo I & Corresponding***
Phosphodiester Oligo VI (SEQ ID NO:11050)

Oligo I (**SEQ ID NO:9370**) countered the effects of adenosine and eliminated sensitivity to it for adenosine amount up to 20 mg adenosine/5.0 ml (the limit of solubility of adenosine). Oligo VI (**SEQ ID NO: 11050**), the phosphodiester version of the oligonucleotide sequence, was completely ineffective when tested in the same manner. Both compounds have identical sequence, differing only in the presence of phosphorothioate residues in Oligo I (**SEQ ID NO:9370**), and were delivered as an aerosol as described above and in Nyce & Metzger (1997), supra. Significantly different at $p<0.001$, Student's paired t test. The results are discussed in Example 29 below.

RESULTS OBTAINED FOR ANTI-SENSE OLIGO I (**SEQ ID NO: 1**)

Example 19: **Results of Prior Work**

The nucleotide sequence and other data for anti-sense oligo I (**SEQ ID NO: 9370**), which is specific for the adenosine A_1 receptor, were provided above. The experimental data showing the effectiveness of oligo I in down regulating the receptor number and activity were also provided above. Further information on the characteristics and activities of anti-sense oligo I is provided in Nyce, J. W. and Metzger, W. J., Nature 385:721 (1997), the relevant parts of which relating to the following results are incorporated in their entireties herein by reference. The Nyce & Metzger (1997) publication provided data showing that the anti-sense oligo I (**SEQ ID NO: 9370**):

(1) The anti-sense oligo I reduces the number of adenosine A_1 receptors in the bronchial smooth muscle of allergic rabbits in a dose-dependent manner as may be seen in Table 5 below.

(2) Anti-sense Oligo I attenuates adenosine-induced bronchoconstriction and allergen-induced bronchoconstriction.

(3) The Oligo I attenuates bronchial hyperresponsiveness as measured by PC_{50} histamine, a standard measurement to assess bronchial hyperresponsiveness. This result clearly demonstrates anti-inflammatory activity of the anti-sense oligo I as is shown in Table 5 above.

(4) As expected, because it was designed to target it, the anti-sense oligo I is totally specific for the adenosine A_1 receptor, and has no effect at all at any dose on either the very closely related adenosine A_2 receptor or the related bradykinin B_2 receptor. This is seen in Table 5 below.

(5) In contradistinction to the above effects of the Oligo I, the mismatch control molecules MM2 and MM3 (**SEQ ID NO:11051** and **SEQ ID NO:11052**) which have identical base composition and molecular weight but differed from the anti-sense oligo I (**SEQ ID NO: 9370**) by 6 and 2 mismatches, respectively. These mismatches, which are the minimum possible while still retaining identical base composition, produced absolutely no effect upon any of the targeted receptors (A_1, A_2 or B_2).

These results, along with a complete lack of prior art on the use of anti-sense oligonucleotides, such as oligo I, targeted to the adenosine A_1 receptor, are unexpected results. The showings presented in this patent clearly enable and demonstrate the effectiveness, for their intended use, of the claimed agents and method for treating a disease or condition associated with lung airway, such as bronchoconstriction, inflammation, allergy(ies), and the like.

Example 20: **Oligo I Significantly Reduces**
Response to Adenosine Challenge

The receptor binding experiment is described in Example 12 above, and the results shown in Table 5 below which shows the binding characteristics of the adenosine A_1-selective ligand [^{3}H]DPCPX and the bradykinin B_2-selective ligand [^{3}H]NPC 17731 in membranes isolated from airway smooth muscle of A_1 adenosine receptor and B_2 bradykinin receptor anti-sense- and mismatch-treated allergic rabbits.

Table 5: Binding Characteristics of Three Anti-Sense Oligos

Treatment[1]	A_1 receptor		B_2 receptor	
	Kd	B_{max}	Kd	Bmax

Adenosine A_1	**Receptor**			
20 mg	0.36±0.029 nM	19±1.52 fmoles*	0.39±0.031 nM	14.8±0.99fmoles
2 mg	0.38±0.030 nM	32±2.56 fmoles*	0.41±0.028 nM	15.5±1.08 fmoles
0.2 mg	0.37±0.030 nM	49±3.43 fmoles	0.34±0.024 nM	15.0±1.06 fmoles
A_1MM1	**(Control)**			
20 mg	0.34±0.027 nM	52.0±3.64 fmoles	0.35±0.024 nM	14.0±1.0 fmoles
2 mg	0.37±0.033 nM	51.8±3.88 fmoles	0.38±0.028 nM	14.6±1.02 fmoles
B_2A (Bradykinin	**Receptor)**			
20 mg	0.36±0.028 nM	45.0±3.15 fmoles	0.38±0.027 nM	8.7±0.62 fmoles*
2 mg	0.39±0.035 nM	44.3±2.90 fmoles	0.34±0.024 nM	11.9±0.76
0.2 mg	0.40±0.028 nM	47.0±3.76 fmoles	0.35±0.028 nM	15.1±1.05 fmoles
B_2MM (Control)				
20 mg	0.39±0.031 nM	42.0±2.94 fmoles	0.41±0.029 nM	14.0±0.98 fmoles
2 mg	0.41±0.035 nM	40.0±3.20 fmoles	0.37±0.030 nM	14.8±0.99 fmoles
0.2 mg	0.37±0.029 nM	43.0±3.14 fmoles	0.36±0.025 nM	15.1±1.35 fmoles
Saline Control	0.37±0.041	46.0±5.21	0.39±0.047 nM	14.2±1.35 fmoles

Example 21: Dose-response Effect of Oligo I

Anti-sense oligo I (**SEQ ID NO:9370**) was found to reduce the effect of adenosine administration to the animal in a dose-dependent manner over the dose range tested as shown in Table 6 below.

Table 6: Dose-Response Effect to Anti-sense Oligo I

Total Dose (mg)	$PC_{50\ Adenosine}$ (mg Adenosine)
Anti-sense Oligo I	
0.2	8.32±7.2
2.0	14.0±7.2
20	19.5±0.34
A_1MM2 oligo (control)	
0.2	2.51±0.46
2.0	3.13± 0.71
20	3.25± 0.34

The above results were studied with the Student's paired t test and found to be statistically different, $p=0.05$

The oligo I (**SEQ ID NO:9370**), an anti-adenosine A_1 receptor oligo, acts specifically on the adenosine A_1 receptor, but not on the adenosine A_2 receptors. These results stem from the treatment of rabbits with anti-sense oligo I (**SEQ ID NO: 9370**) or mismatch control oligo (**SEQ ID NO:11051**; A_1MM2) as described in Example 9 above and in Nyce & Metzger (1997), supra (four doses of 5 mg spaced 8 to 12 hours apart via nebulizer via endotracheal tube), bronchial smooth muscle tissue excised and the number of adenosine A_1 and adenosine A_2 receptors determined as reported in Nyce & Metzger (1997), supra.

Example 22: Specificity of Oligo I (SEQ ID NO:9370) for Target Gene Product

Oligo I (**SEQ ID NO:9370**) is specific for the adenosine A_1 receptor whereas its mismatch controls had no activity. Figure 1 depicts the results obtained from the cross-over experiment described in Example 10 above and in Nyce & Metzger (1997), supra. The two mismatch controls (**SEQ ID NO:11051** and **SEQ ID NO:11052**) evidenced no effect on the $PC_{50\ Adenosine}$ value. On the contrary, the administration of anti-sense oligo I (**SEQ ID NO:9370**) showed a seven-fold increase in the $PC_{50\ Adenosine}$ value. The results clearly indicate that the anti-sense oligo I (**SEQ ID NO: 9370**) reduces the response (attenuates the sensitivity) to exogenously administered adenosine

when compared with a saline control. The results provided in Table 6 above clearly establish that the effect of the anti-sense oligo I is dose dependent (see, column 3 of Table 5). The Oligo I was also shown to be totally specific for the adenosine A_1 receptor, (see, top 3 rows of Table), inducing no activity at either the closely related adenosine A_2 receptor or the bradykinin B_2 receptor (see, lines 8-10 of Table 6 above). In addition, the results shown in Table 6 establish that the anti-sense oligo I (**SEQ ID NO:9370**) decreases sensitivity to adenosine in a dose dependent manner, and that it does this in an anti-sense oligo-dependent manner since neither of two mismatch control oligonucleotides (A_1MM2; **SEQ ID NO:11051** and A_1MM3; **SEQ ID NO:11052**) show any effect on $PC_{50\ Adenosine}$ values or on attenuating the number of adenosine A_1 receptors.

Example 23: **Effect on Aeroallergen-induced Bronchoconstriction & Inflammation**

The Oligo I (**SEQ ID NO:9370**) was shown to significantly reduce the histamine-induced effect in the rabbit model when compared to the mismatch oligos. The effect of the anti-sense Oligo I (**SEQ ID NO:9370**) and the mismatch oligos (A_1MM2, **SEQ ID NO:11051**and A_1MM3, **SEQ ID NO:11051**) on allergen-induced airway obstruction and bronchial hyperresponsiveness was assessed in allergic rabbits. The effect of the anti-sense oligo I (**SEQ ID NO:9370**) on allergen-induced airway obstruction was assessed. As calculated from the area under the plotted curve, the anti-sense oligo I significantly inhibited allergen-induced airway obstruction when compared with the mismatched control (55%, $p<0.05$; repeated measures ANOVA, and Tukey's t test). A complete lack of effect was induced by the mismatch oligo A_1MM2 (Control) on allergen induced airway obstruction. The effect of the anti-sense oligo I (**SEQ ID NO:9370**) on allergen-induced BHR was determined as above. As calculated from the $PC_{50\ Histamine}$ value , the anti-sense oligo I (**SEQ ID NO:9370**) significantly inhibited allergen-induced BHR in allergic rabbits when compared to the mismatched control (61%, $p<0.05$; repeated measures ANOVA, Tukey's t test). A complete lack of effect of the A_1MM mismatch control on allergen-induced BHR was observed. The results indicated that anti-sense oligo I (**SEQ ID NO: 9370**) is effective to protect against aeroallergen-induced bronchoconstriction (house dust mite). In addition, the anti-sense oligo I (**SEQ ID NO:9370**) was also found to be a potent inhibitor of dust mite-induced bronchial hyper responsiveness, as shown by its effects upon histamine sensitivity which indicates anti- inflammatory activity for anti-sense oligo I (**SEQ ID NO:1**).The results indicated that anti-sense oligo I (**SEQ ID NO 9370**) is effective to protect against aeroallergen-induced bronchoconstriction (house dust mite). In addition, the anti-sense oligo I (**SEQ ID NO: 9370**) was also found to be a potent inhibitor of dust mite-induced bronchial hyper responsiveness, as shown by its effects upon histamine sensitivity which indicates anti- inflammatory activity for anti-sense oligo I (**SEQ ID NO: 9370**).The results indicated that anti-sense oligo I (**SEQ ID NO: 9370**) is effective to protect against aeroallergen-induced bronchoconstriction (house dust mite). In addition, the anti-sense oligo I (**SEQ ID NO: 9370**) was also found to be a potent inhibitor of dust mite-induced bronchial hyper responsiveness, as shown by its effects upon histamine sensitivity which indicates anti-inflammatory activity for anti-sense oligo I (**SEQ ID NO: 9370**).The results indicated that anti-sense oligo I (**SEQ ID NO: 9370**) is effective to protect against aeroallergen-induced bronchoconstriction (house dust mite). In addition, the anti-sense oligo I (**SEQ ID NO: 9370**) was also found to be a potent inhibitor of dust mite-induced bronchial hyper responsiveness, as shown by its effects upon histamine sensitivity which indicates anti-inflammatory activity for anti-sense oligo I (**SEQ ID NO: 9370**).The results indicated that anti-sense oligo I (**SEQ ID NO: 9370**) is effective to protect against aeroallergen-induced bronchoconstriction (house dust mite). In addition, the anti-sense oligo I (**SEQ ID NO: 9370**) was also found to be a potent inhibitor of dust mite-induced bronchial hyper responsiveness, as shown by its effects upon histamine sensitivity which indicates anti-inflammatory activity for anti-sense oligo I (**SEQ ID NO: 9370**).The results indicated that anti-sense oligo I (**SEQ ID NO: 9370**) is effective to protect against aeroallergen-induced bronchoconstriction (house dust mite). In addition, the anti-sense oligo I (**SEQ ID NO: 9370**) was also found to be a potent inhibitor of dust mite-induced bronchial hyper responsiveness, as shown by its effects upon histamine sensitivity which indicates anti-inflammatory activity for anti-sense oligo I (**SEQ ID NO: 9370**).

Example 24: **Anti-sense Oligo I is Free of Deleterious Side Effects**

The Oligo I (**SEQ ID NO: 9370**) was shown to be free of side effects that might be toxic to the recipient. No changes in arterial blood pressure, cardiac output, stroke volume, heart rafe, total peripheral resistance or heart

contractility (dPdT) were observed following administration of 2.0 or 20 mg oligo I (**SEQ ID NO: 9370**). The addition, the results of the measurement of cardiac output (CO), stroke volume (SV), mean arterial pressure (MAP), heart rate (HR), total peripheral resistance (TPR), and contractility (dPdT) with a CardiomaxJ apparatus (Columbus Instruments, Ohio) were assessed. These results evidenced that oligo I (**SEQ ID NO: 9370**) has no detrimental effect upon critical cardiovascular parameters. More particularly, this oligo does not cause hypotension. This finding is of particular importance because other phosphorothioate anti-sense oligonucleotides have been shown in the past to induce hypotension in some model systems. Furthermore, the adenosine A_1 receptor plays an important role in sinoatrial conduction within the heart. Attenuation of the adenosine A_1 receptor by anti-sense oligo I (**SEQ ID NO: 9370**) might be expected to result, therefore, in deleterious extrapulmonary activity in response to the downregulation of the receptor. This is not the case. The anti-sense oligo I (**SEQ ID NO: 9370**) does not produce any deleterious intrapulmonary effects and renders the administration of the low doses of the present anti-sense oligo free of unexpected, undesirable side effects. This demonstrates that when oligo I (**SEQ ID NO: 9370**) is administered directly to the lung, it does not reach the heart in significant quantities to cause deleterious effects. This is in contrast to traditional adenosine receptor antagonists like theophylline which do escape the lung and can cause deleterious, even life-threatening effects outside the lung.

Example 25: Long Lasting Effect of Oligo I

The Oligo I (**SEQ ID NO: 9370**) evidenced a long lasting effect as evidenced by the PC_{50} and Resistance values obtained upon its administration prior to adenosine challenge. The duration of the effect was measured for with respect to the PC_{50} of adenosine anti-sense oligo I when administered in four equal doses of 5 mg each by means of a nebulizer via an endotracheal tube, as described above. The effect of the agent is significant over days 1 to 8 after administration. When the effect of the anti-sense oligo I (**SEQ ID NO: 9370**) had disappeared, the animals were administered saline aerosols (controls), and the $PC_{50\ Adenosine}$ values for all animals were measured again. Saline-treated animals showed base line PC_{50} adenosine values (n=6). The duration of the effect (with respect to Resistance) was measured for six allergic rabbits which were administered 20 mg of anti-sense oligo I (**SEQ ID NO: 9370**) as described above, upon airway resistance measured as also described above. The mean calculated duration of effect was 8.3 days for both PC_{50} adenosine ($p<0.05$) and resistance ($p<0.05$). These results show that anti-sense oligo I (**SEQ ID NO: 9370**) has an extremely long duration of action, which is completely unexpected.

Example 26: Anti-sense Oligo II

Anti-sense oligo II, targeted to a different region of the adenosine A_1 receptor mRNA, was found to be highly active against the adenosine A_1-mediated effects. The experiment measured the effect of the administration of anti-sense oligo II (**SEQ ID NO: 9376**) upon compliance and resistance values when 20 mg anti-sense oligo II or saline (control) were administered to two groups of allergic rabbits as described above. Compliance and resistance values were measured following an administration of adenosine or saline as described above in Example 13. The effect of the anti-sense oligo of the invention was different from the control in a statistically significant manner, $p<0.05$ using paired t-test, compliance; $p<0.01$ for resistance. The results showed that anti-sense oligo II (**SEQ ID NO: 9376**), which targets the adenosine A_1 receptor, effectively maintains compliance and reduces resistance upon adenosine challenge.

Example 27: Antisense Oligos III and IV

Oligos III (**SEQ ID NO: 9377**) and IV (**SEQ ID NO: 9378**) were shown to be in fact specifically targeted to the adenosine A_3 receptor by their effect on reducing inflammation and the number of inflammatory cells present upon separate administration of 20 mg of the anti-sense oligos III (**SEQ ID NO: 9377**) and IV (**SEQ ID NO: 9378**) to allergic rabbits as described above. The number of inflammatory cells was determined in their bronchial lavage fluid 3 hours later by counting at least 100 viable cells per lavage. The effect of anti-sense oligos III (**SEQ ID NO: 9377**) and IV (**SEQ ID NO: 9378**) upon granulocytes, and upon total cells in bronchial lavage were assessed following exposure to dust mite allergen. The results showed that the anti-sense oligo IV (**SEQ ID NO: 9378**) and anti-sense oligo III (**SEQ ID NO: 9377**) are very potent anti-inflammatory agents in the asthmatic lung following exposure to dust mite allergen. As is known in the art, granulocytes, especially eosinophils, are the primary inflammatory cells of asthma, and the administration of anti-sense oligos III (**SEQ ID NO: 9377**) and IV (**SEQ ID NO: 9378**) reduced their numbers by 40% and 66%, respectively. Furthermore, anti-sense oligos IV (**SEQ ID NO: 9378**) and III (**SEQ ID NO: 9376**) also reduced the total number of cells in the bronchial lavage fluid by 40% and

80%, respectively. This is also an important indicator of anti-inflammatory activity by the present anti-adenosine A_3 agents of the invention. Inflammation is known to underlie bronchial hyperresponsiveness and allergen-induced bronchoconstriction in asthma. Both anti-sense oligonucleotides III (**SEQ ID NO: 9377**) and IV (**SEQ ID NO: 9378**), which are targeted to the adenosine A_3 receptor, are representative of an important new class of anti-inflammatory agents which may be designed to specifically target the lung receptors of each species.

Example 28: Anti-sense Oligo V

The anti-sense oligo V (**SEQ ID NO: 9379**) , targeted to the adenosine A_{2b} adenosine receptor mRNA was shown to be highly effective at countering adenosine A_{2b}-mediated effects and at reducing the number of adenosine A_{2b} receptors present to less than half.

Example 29: Unexpected Superiority of Substituted over Phosphodiester-residue Oligo I-DS (SEQ ID NO:1681)

Oligos I (**SEQ ID NO: 9370**) and I-DS (**SEQ ID NO: 11050**) were separately administered to allergic rabbits as described above, and the rabbits were then challenged with adenosine. The phosphodiester oligo I-DS (**SEQ ID NO: 11050**) was statistically significantly less effective in countering the effect of adenosine whereas oligo I (**SEQ ID NO: 9370**) showed high effectiveness, evidencing a $PC_{50\ Adenosine}$ of 20 mg.

Example 30: Anti-sense Oligo VI

For the present work, I designed an additional anti-sense phosphorothioate oligo targeted to the adenosine A_1 receptor (Oligo VI). This anti-sense oligo was designed for therapy on a selected species as described in the above patent application and is generally specific for that species, unless the segment of the adenosine receptor mRNA of other species elected happens to have a similar sequence. The anti-sense oligos were prepared as described below, and tested in vivo in a rabbit model for bronchoconstriction, inflammation and lung allergy, which have breathing difficulties and impeded lung airways, as is the case in ailments such as asthma, as described in the above-identified application. One additional oligo and its effect in a rabbit model was studied and the results of the study are reported and discussed below. The present oligo (anti-sense oligo VI) was selected for this study to complement the data on SEQ ID NO: 1 (Oligo I), which is anti-sense to the adenosine A_1 receptor mRNA provided in the above-identified patent application. This additional oligo is identified as anti-sense Oligo VI, and is targeted to a different region of the adenosine A_1 receptor mRNA than Oligo I. The design and synthesis of this anti-sense oligo was performed in accordance with the teaching, particularly Example 1, of the above-identified patent application. The anti-sense Oligo VI is a phosphorothioate designed to target the coding region of the rabbit adenosine A_1 receptor mRNA region +964 to +984 relative to the initiation codon (start site). The Oligo VI was prepared as described in the above-indicated application, and is 20 nucleotides long. The OligoVI is directed to the adenosine A_1 receptor gene, and has the following sequence: **5'-CGC CGG CGG GTG CGG GCC GG-3' (SEQ ID NO: 12491)**. The phosphorothioate anti-sense Oligo VI having the sequence described in (5) above, was synthesized on an Applied Biosystems Model 396 Oligonucleotide Synthesizer, and purified using NENSORB chromatography (DuPont, DE). TETD (tetraethylthiuram disulfide) was used as the sulfurizing agent during the synthesis.

Example 31: Preparation of Allergic Rabbits

Neonatal New Zealand white Pasturella-free rabbits were immunized intraperitoneally within 24 hours of birth with 0.5 ml of 312 antigen units/ml house dust mite (D. farinae) extract (Berkeley Biologicals, Berkeley, CA) mixed with 10% kaolin as previously described (Metzger, W. J., in Late Phase Allergic Reactions, Dorsch, W., Ed., CRC Handbook, pp 347-362, CRC Press, Boca Raton, 1990; Ali, S. Et al., Am. J. Resp. Crit. Care Med. 149: 908 (1994)). The immunizations were repeated weekly for the first month and then bi-weekly until the animals were 4 months old. These rabbits preferentially produce allergen-specific IgE antibody, typically respond to aeroallergen challenge with both an early and late-phase asthmatic response, and show bronchial hyper responsiveness (BHR). Monthly intraperitoneal administration of allergen (312 units dust mite allergen, as above) continues to stimulate and maintain allergen-specific IgE antibody and BHR. At 4 months of age, sensitized rabbits were prepared for aerosol administration as described by Ali et al. (1994), supra.

Example 32: Adenosine Aerosol Preparation

An adenosine aerosol (20 mg/ml) was prepared with an ultrasonic nebulizer (Model 646, DeVilbiss, Somerset, PA), which produced aerosol droplets, 80% of which were smaller than 5:m in diameter. Equal volumes of the aerosols were administered directly to the lungs via an intratracheal tube to all three rabbits. The animals were then administered the aerosolized adenosine and Day 1 pre-treatment values for sensitivity to adenosine were calculated as the dose of adenosine causing a 50% loss of compliance (PC_{50} Adenosine). The animals were then administered the aerosolized anti-sense via the intratracheal tube (5 mg/1.0 ml), for 2 minutes, twice daily for 2 days (total dose, 20 mg). Post-treatment PC_{50} values were recorded (post-treatment challenge) on the morning of the third day. The results of these studies are provided in (9) below.

Example 33: Anti-sense Oligo Formulation

Each one of anti-sense oligos were separately solubilized in an aqueous solution and administered as described for anti-sense oligo I in (e) above, in four 5 mg aliquots (20 mg total dose) by means of a nebulizer via endotracheal tube, as described above.

Example 34: Oligo VI Reduces Response to Adenosine Challenge as well or Better than Oligo I

Oligo VI was tested in three allergic rabbits of the characteristics and readied as described in (7) above and in the above-indicated patent application. Oligo VI targets a section of the coding region of the A_1 receptor which is different from Oligo I. Both these target sequences were selected randomly from many possible coding region target sequences. The three rabbits were treated identically as previously indicated for Oligo I. Briefly, 5 mg of Oligo VI were nebulized to the rabbits twice per day at 8 hour intervals, for two days. Thereafter, PC_{50} adenosine studies were performed on the morning of the third day and compared to pre-treatment PC_{50} values. This protocol is described in more detail in Nyce and Metzger (Nyce & Metzger, Nature 385: 721-725 (1997)). The results obtained for the three rabbits are shown in Table 7 below.

Table 7: PC_{50} Adenosine before & after Aerosolized Adenosine Treatment

Treatment Time	PC_{50} Adenosine (mg)
Pre-treatment	3.0 ±2.1
Post-treatment	>20.0*

* maximum achievable dose due to adenosine insolubility in saline

All three animals treated with Oligo VI completely eliminated sensitivity to adenosine up to the measurable level of the agent shown in Table 7 above. That is, the administration of the Oligo VI abrogated the adenosine-induced bronchoconstriction in the three allergic rabbits. The actual efficacy of Oligo VI is, therefore, greater than could be measured in the experimental system used. By comparing with the previously submitted results for the Oligo I, it may be seen that the Oligo VI was found to be as effective, or more, than Oligo I.

Example 34: Conclusions

The work described and results discussed in the examples clearly indicates that all anti-sense oligonucleotides designed in accordance with the teachings of the above-identified application were found to be highly effective at countering or reducing effects mediated by the receptors they are targeted to: That is, each and all of the two anti-sense oligos targeting an adenosine A_1 receptor mRNA, 1 anti-sense oligo targeting an adenosine A_{2b} receptor mRNA, and the 2 anti-sense oligos targeting an A_3 receptor mRNA were shown capable of countering the effect of exogenously administered adenosine which is mediated by the specific receptor they are targeted to. The activity of the anti-sense oligos of this invention, moreover, is specific to the target and substitutively fails to inhibit another target. In addition, the results presented also show that the administration of the present agents results in extremely low or non-existent deleterious side effects or toxicity. This represents 100% success in providing agents that are highly effective and specific in the treatment of bronchoconstriction and/or inflammation. This invention is broadly applicable in the same manner to all gene(s) and corresponding mRNAs encoding proteins involved in or associated with airway diseases. A comparison of the phosphodiester and a version of the same oligonucleotide wherein the phosphodiester bonds are substituted with phosphorothioate bonds evidenced an unexpected superiority for the phosphothiorate oligonucleotide over the phosphodiester anti-sense oligo.

Example 35: In Vivo Response to Adenosine Challenge

with & without Oligo I Pretreatment

Two hyper responsive monkeys (ascaris sensitive) were challenged with inhaled adenosine, with and without pre-treatment with anti-sense oligo I (**SEQ ID NO: 9370**). The PC_{40} adenosine was calculated from the data collected as being equivalent to that amount of adenosine in mg that causes a 40% decrease in dynamic compliance in hyper-responsive airways. The Oligo I (**SEQ ID NO: 9370**; EPI 2010) was subsequently administered at 10 mg/day for 2 days by inhalation. On the third day, the PC adenosine was again measured. The PC_{40} adenosine value prior to treatment with Oligo I was compared side-by-side with to the PC_{40} adenosine taken after administration of Oligo I (Figure not shown). The results of the experiment conducted with two animals showed that any sensitivity to adenosine was completely eliminated by the administration of the oligo of this invention in one animal, and substantially reduced in the second.

Example 36: Extension of the experimental Results

The method of the present invention is also practiced with anti-sense oligonucleotides targeted to many genes, mRNAs and their corresponding proteins as described above, in essentially the same manner as given above, for the treatment of various conditions in the lungs. Examples of these are Human A_{2a} adenosine receptor, Human A_{2b} adenosine receptor, Human IgE receptor β, Human Fc-epsilon receptor CD23 antigen (IgE receptor), Human IgE receptor, α subunit, Human IgE receptor, Fc epsilon R, Human histidine decarboxylase, Human beta tryptase, Human tryptase-I, Human prostaglandin D synthase, Human cyclooxygenase-2, Human eosinophil cationic protein, Human eosinophil derived neurotoxin, Human eosinophil peroxidase, Human intercellular adhesion molecule-1 (ICAM-1), Human vascular cell adhesion molecule 1 (VCAM-1), Human endothelial leukocyte adhesion molecule (ELAM-1), Human P Selectin, Human endothelial monocyte activating factor, Human IL3, Human IL4, Human IL5, Human IL6, Human monocyte-derived neutrophil chemotactic factor, Human neutrophil elastase (medullasin), Human neutrophil oxidase factor, Human cathepsin G, Human defensin 1, Human defensin 3, Human macrophage inflammatory protein-1-alpha, Human muscarinic acetylcholine receptor HM1, Human muscarinic acetylcholine receptor HM3, Human fibronectin, Human interleukin 8, Human GM-CSF, Human tumor necrosis factor α, Human leukotriene C4 synthase, Human major basic protein, and many more.

Example 37: In Vivo Effects of Folinic Acid and DHEA on Adenosine Levels

In the examples provided below, EA means an epiandrosterone, DHEA means dehydroepiandrosterone, s means seconds, mg means milligrams, kg means kilograms, kw means kilowatts, Mhz means megahertz, CoQ means a ubiquinone, and nmol means nanomoles.

Young adult male Fischer 344 rats (120 grams) were administered dehydroepiandrosterone (DHEA) (300 mg/kg) or methyltestosterone (40 mg/kg) in carboxymethylcellulose by gavage once daily for fourteen days. Folinic acid (50 mg/kg) was administered intraperitoneally once daily for fourteen days. On the fifteenth day, the animals were sacrificed by microwave pulse (1.33 kw, 2450 MHZ, 6.5 s) to the cranium, which instantly denatures all brain protein and prevents further metabolism of adenosine. Hearts were removed from animals and flash frozen in liquid nitrogen with 10 seconds of death. Liver and lungs were removed en bloc and flash frozen with 30 seconds of death. Brain tissue was subsequently dissected. Tissue adenosine was extracted, derivatized to 1, N6-ethenoadenosine and analyzed by high performance liquid chromatography (HPLC) using spectrofluorometric detection according to the method of Clark and Dar (J. of Neuroscience Methods 25:243 (1988)). Results of these experiments are summarized in Table 1 below. Results are expressed as the mean $\pm$ SEM, with ? $p<0.05$ compared to control group and ψ $p<0.05$ compared to DHEA or methyltestosterone-treated groups.

Table 1: In Vivo Effect of DHEA, δ-1-methyltestosterone & Folinic Acid on Adenosine Levels in Various Rat Tissues

	Intracellular Adenosine (nmol/mg protein)		
	Heart	Lung	Brain
Control	10.6±0.6 (n=12)	3.1±0. (n=6)	0.5±0.04 (n=12)
DHEA (300 mg/kg)	6.7±0.5 (n=12)	2.3±0.3 (n=6)	0.19±0.01 (n=12)
Methyltestosterone (40 mg/kg)	8.3±1.0 (n=6)	N.D.	0.42±0.06 (n=6)
Methyltestost. (M) (120mg/kg)	6.0±0.4 (n=6)	N.D.	0.32±0.03 (n=6)
Folinic Acid (F.A.) (50mg/kg)	12.4±2.1 (n=5)	N.D.	0.72±0.09 (n=5)
DHEA+ F.A. (300mg/kg;50mg/kg)	11.1±0.6 (n=5)	N.D.	0.55±0.09 (n=5)
M + F.A. (120mg/kg;50mg/kg)	9.1±0.4 (n=6)	N.D.	0.60±0.06 (n=6)

N.D. = Not Determined

The results of these experiments indicate that rats administered DHEA or methyltestosterone daily for two weeks showed multi-organ depletion of adenosine. Depletion was dramatic in brain (60% depletion for DHEA, 34% for high dose methyltestosterone) and heart (37% depletion for DHEA, 22% depletion for high dose methyltestosterone). Co-administration of folinic acid completely abrogated steroid-mediated adenosine depletion. Folinic acid administered alone induce increase in adenosine levels for all organs studied.

Example 38: Preparation of the Experimental Model

Cell cultures, HT-29 SF cells, which represent a subline of HY-29 cells (ATCC, Rockville, Md.) and are adapted for growth in completely defined serum-free PC-1 medium (Ventrex, Portland, Me.), were obtained. Stock cultures were maintained in this medium at 37° in a humidified atmosphere containing 5% CO_2. At confluence cultures were replated after dissociation using trypsin/EDTA (Gibco, Grand Island, N.Y.) and re-fed every 24 hours. Under these conditions, the doubling time for HT-29 SF cells during logarithmic growth was 24 hours.

Example 39: Flow Cytometry

Cells were plated at 10^5/60-mm dish in duplicate. For analysis of cell cycle distribution, cultures were exposed to either 0, 25, 50, or 200 μM DHEA. For analysis of reversal of cell cycle effects of DHEA, cultures were exposed to either 0 or 25 μM DHEA, and the media were supplemented with MVA, CH, RN, MVA plus CH, or MVA plus CH plus RN or were not supplemented. Cultures were trypsinized following 0, 24, 48, or 74 hours and fixed and stained using a modification of a procedure of Bauer et al., *Cancer Res.*, 46, 3173-3178 (1986). Briefly, cells were collected by centrifugation and resuspended in cold phosphate-buffered saline. Cells were fixed in 70% ethanol, washed, and resuspended in phosphate-buffered saline. One ml hypotonic stain solution [50 μg/ml propidium iodide (Sigma Chemical Co.), 20 μg/ml Rnase A (Boehringer Mannheim, Indianapolis, Ind.), 30 mg/ml polyethylene glycol, 0.1% Triton X-100 in 5 mM citrate buffer] was then added, and after 10 min at room temperature, 1 ml of isotonic stain solution [propidium iodide, polyethylene glycol, Triton X-100 in 0.4M NaCl] was added and the cells were analyzed using a flow cytometer, equipped with pulse width/pulse area doublet discrimination (Becton Dickinson Immunocytometry Systems, San Jose, Calif.) After calibration with fluorescent beads, a minimum of 2×10^4 cells/sample were analyzed, data were displayed s total number of cells in each of 1024 channels of increasing fluorescence intensity, and the resulting histogram was analyzed using the Cellfit analysis program (Becton Dickinson).

Example 40: DHEA Effect on Cell Growth

Cells were plated 25,000 cells/30 mm dish in quadruplicate, and after 2 days received 0, 12.5, 25, 50, or 200 μM DHEA. Cell number was determined 0, 24, 48, and 72 hours later using a Coulter counter (model Z, Coulter Electronics, Inc. Hialeah, Fla.). DHEA (AKZO, Basel, Switzerland) was dissolved in dimethyl sulfoxide,

filter sterilized, and stored at -20°C until use.

Figure 1 illustrates the inhibition of growth for HT-29 cells by DHEA. Points refer to numbers of cells, and bars refer to SEM. Each data point was performed in quadruplicate, and the experiment was repeated three times. Where SEM bars are not apparent, SEM was smaller than symbol. Exposure to DHEA resulted in a reduced cell number compared to controls after 72 hours in 12.5 μM, 48 hours in 25 or 50 μM, and 24 hours in 200 μM DHEA, indicating that DHEA produced a time- and dose-dependent inhibition of growth.

Example 41: DHEA Effect on Cell Cycle

To examine the effects of DHEA on cell cycle distribution, HT-29 SF cells were plated (10^5 cells/60 mm dish), and 48 hours later treated with 0,25, 50, or 200 μM DHEA. FIG. 2 illustrates the effects of DHEA on cell cycle distribution in HT-29 SF cells. After 24, 48, and 72 hours, cells were harvested, fixed in ethanol, and stained with propidium iodide, and the DNA content/cell was determined by flow cytometric analysis. The percentage of cells in G_1, S, and G_2M phases was calculated using the Cellfit cell cycle analysis program. S phase is marked by a quadrangle for clarity. Representative histograms from duplicate determinations are shown. The experiment was repeated three times.

The cell cycle distribution in cultures treated with 25 or 50 μM DHEA was unchanged after the initial 24 hours. However, as the time of exposure to DHEA increased, the proportion of cells in S phase progressively decreased, and the percentage of cells in G_1, S and G_2M phases was calculated using the Cellfit cell cycle analysis program. S phase is marked by a quadrangle for clarity. Representative histograms from duplicate determinations are shown. The experiment was repeated three times.

The cell cycle distribution in cultures treated with 25 or 50 μM DHEA was unchanged after the initial 24 hours. However, as the time of exposure to DHEA increased, the proportion of cells in S phase progressively decreased and the percentage of cells in G_1 phase was increased after 72 hours. A transient increase in G_2M phase cells was apparent after 48 hours. Exposure to 200 μM DHEA produced a similar but more rapid increase in the percentage of cells in G_1 and a decreased proportion of cells in S phase after 24 hours, which continued through the treatment. This indicates that DHEA produced a G_1 block in HT-29 SF cells in a time-and dose-dependent manner.

Example 42: Reversal of DHEA-mediated Effect on Growth & Cell Cycle

Reversal of DHEA-mediated Growth Inhibition. Cells were plated as above, and after 2 days received either 0 or 25 μM DHEA-containing medium supplemented with mevalonic acid ("MVA"; 2 mM) squalene ("SQ"; 80 μM), cholesterol ("CH"; 15 μg/ml), MVA plus CH, ribonucleosides ("RN"; uridine, cytidine, adenosine, and guanosine at final concentrations of 30 μM each), deoxyribonucleosides ("DN"; thymidine, deoxycytidine, deoxyadenosine and deoxyguanosine at final concentrations of 20 μM each). RN plus DN, or MVA plus CH plus RN, or medium that was not supplemented. All compounds were obtained from Sigma Chemical Co. (St. Louis, Mo.) Cholesterol was solubilized in ethanol immediately before use. RN and DN were used in maximal concentrations shown to have no effects on growth in the absence of DHEA.

Figure 3 illustrates the reversal of DHEA-induced growth inhibition in HT-29 SF cells. In A, the medium was supplemented with 2 μM MVA, 80 μM SQ, 15 μg/ml CH, or MVA plus CH (MVA+CH) or was not supplemented (CON). In B, the medium was supplemented with a mixture of RN containing uridine, cytidine, adenosine, and guanosine in final concentrations of 30 μM each; a mixture of DN containing thymidine, deoxycytidine, deoxyadenosine and deoxyguanosine in final concentrations of 20 μM each; RN plus DN (RN+DN); or MVA plus CH plus RN (MVA+CH+RN). Cell numbers were assessed before and after 48 hours of treatment, and culture growth was calculated as the increase in cell number during the 48 hour treatment period. Columns represent cell growth percentage of untreated controls; bars represent SEM. Increase in cell number in untreated controls was 173,370 ± 6518. Each data point represents quadruplicate dishes from four independent experiments. Statistical analysis was performed using Student's t test; ψ p<0.01; κ p< 0.001; compared to treated controls. Note that supplements had little effect on culture growth in absence of DHEA.

Under these conditions, the DHEA-induced growth inhibition was partially overcome by addition of MVA as well as by addition of MVA plus CH. Addition of SQ or CH alone had no such effect. This suggest that the cytostatic activity of DHEA was in part mediated by depletion of endogenous mevalonate and subsequent inhibition of the biosynthesis of an early intermediate in the cholesterol pathway that is essential for cell growth. Furthermore, partial reconstitution of growth was found after addition of RN as well as after addition of RN plus DN but not after addition of DN, indicating that depletion of both mevalonate and nucleotide pools is involved in the growth-inhibitory action of DHEA. However, none of the reconstitution conditions including the combined addition of

MVA, CH, and RN completely overcame the inhibitory action of DHEA, suggesting either cytotoxic effects or possibly that additional biochemical pathways are involved.

Example 43: **Reversal of DHEA Effect on Cell Cycle**

HT-29 SF cells were treated with 25 FM DHEA in combination with a number of compounds, including MVA, CH, or RN, to test their ability to prevent the cell cycle-specific effects of DHEA. Cell cycle distribution was determined after 48 and 72 hours using flow cytometry.

Figure 4 illustrates reversal of DHEA-induced arrest in HT-29 SF cells. Cells were plated (10^5 cells/60 mm dish) and 48 hours later treated with either 0 or 25 FM DHEA. The medium was supplemented with 2 FM MVA; 15 Fg/ml CH; a mixture of RN containing uridine, cytidine, adenosine, and guanosine in final concentrations of 30 FM; MVA plus CH (MVA+CH); or MVA plus CH plus RN (MVA+CH+RN) or was not supplemented. Cells were harvested after 48 or 72 hours, fixed in ethanol, and stained with propidium iodine, and the DNA content per cell was determined by flow cytometric analysis. The percentage of cells in G_1, S, and G_2M phases were calculated using the Cellfit cell cycle profile analysis program. S phase is marked by a quadrangle for clarity. Representative histograms from duplicative determinations are shown. The experiment was repeated two times. Note that supplements had little effect on cell cycle progression in the absence of DHEA.

With increasing exposure time, DHEA progressively reduced the proportion of cells in S phase. While inclusion of MVA partially prevented this effect in the initial 48 hours but not after 72 hours, the addition of MVA plus CH was also able to partially prevent S phase depletion at 72 hours, suggesting a requirement of both MVA and CH for cell progression during prolonged exposure. The addition of MVA, CH, and RN was apparently most effective at reconstitution but still did not restore the percentage of S phase cells to the value seen in untreated control cultures. CH or RN alone had very little effect at 48 hours and no effect at 72 hours. Morphologically, cells responded to DHEA by acquiring a rounded shape, which was prevented only by the addition of MVA to the culture medium (data not shown). Some of the DNA histograms after 72 hours DHEA exposure in FIG.4 also show the presence of a subpopulation of cells possessing apparently reduced DNA content. Since the HT-29 cell line is known to carry populations of cells containing varying numbers of chromosomes (68-72; ATCC), this may represent a subset of cells that have segregated carrying fewer chromosomes.

Example 44: **Conclusions**

The examples above provide evidence that in vitro exposure of HT-29 SF human colonic adenocarcinoma cells to concentrations of DHEA known to deplete endogenous mevalonate results in growth inhibition and G_1 arrest and that addition of MVA to the culture medium in part prevents these effects. DHEA produced effects upon protein isoprenylation which were in many respects similar to those observed for specific 3-hydroxy-3-methyl-glutaryl-CoA reductase inhibitors such as lovastatin and compactin. Unlike direct inhibitors of mevalonate biosynthesis, however, DHEA mediates its effects upon cell cycle progression and cell growth in a pleiotropic manner involving ribo-and deoxyribonucleotide biosynthesis and possibly other factors as well.

The foregoing examples are illustrative of the present invention, but should not to be construed as limiting thereof. The invention is defined by the following claims, with equivalents of the claims to be included therein.

Example 45: **Effect of CoQs & an EA on In Vitro NADPH Levels**

Glocose-6-Phosphate Dehydrogenase (G6PD) is an important enzyme that is widespread in mammals, and is involved in the conversion of NADP to NADPH, thereby increasing NADPH levels. An inhibition of the G6PD enzyme, thus, will be expected to result in a reduction of cellular NADPH levels, which event, in turn, will be expected to inhibit pathways that are heavily dependent on NADPH. One such pathway, the so-called One-Carbon-Pool pathway, also known as the Folate Pathway, is directly involved in the production of adenosine by addition of the C_2 and C_8 carbon atoms of the purine ring. Consequently, the inhibition of this pathway will lead to adenosine depletion.

The present invention is broadly applicable to dehdroepiandrosterones (DHEAs) and Ubiquinones (CoQs). The description of the pathways involved in the present invention are described in the Background section. The present experiment was designed to show that one DHEA and two CoQs inhibit NADPH levels. DHEA, an dehydroepiandrosterone, has already been shown to decrease levels of adenosine in various tissues. See, Examples 1 and 2 above. The fact that two CoQs are shown to lower NADPH levels to a similar extent as a dehydroepiandrosterone, let alone to a similar extent ensures that the NADPH reduction caused by the CoQs will

also result in lower cellular adenosine levels or in adenosine cell depletion. Thus, in accordance with the invention, both dehydroepiandrosterones and Ubiquinones decrease levels of adenosine and, therefore, are useful as medicaments for use in the treatment of diseases where a decrease of adenosine levels or its depletion is desirable, including respiratory diseases such as asthma, bronchoconstriction, lung inflammation and allergies and the like. Both Ubiquinones and DHEA inhibit NADPH levels in a statistically significant manner, when compared to a control. Moreover, the Ubiquinone inhibits NADPH levels to a similar extent as DHEA. The present invention is broadly applicable to the use of dehydroepiandrosterones (DHEAs) and Ubiquinones (CoQs) to the treatment of respiratory and lung diseases, and other diseases associated with varying levels of adenosine, adenosine hypersensitivity, asthma, bronchoconstriction, and/or lung inflammation and allergies. The DHEA and Ubiquinones employed in the present experiments are equivalent to those described and exemplified above.

Enzymatic assay of purified G6PDH

The reaction mixture contained 50mM glycyl glycine buffer, pH 7.4, 2 mM D-glucose-6-phosphate, 0.67 mM Beta-NADP, 10 mM $MgCL_2$ and 0.0125 units of G6PDH in a final volume of 3.0 ml. All experiments were repeated 4 times.

The control group contained 3 samples that were added no DHEA or ubiquinone. The experimental group contained a similar number of samples (3) for each concentration of DHEA or ubiquinone. One group was added DHEA (in triplicate) at different concentrations. A second group was added different concentrations of a CoQ of long side chain (in triplicate), and a third group received a CoQ of short side chain (in triplicate), both at various doses in the μM range.

The reaction was started by addition of the enzyme, and the increase in absorbance at 340 nm was measured for 5 minutes. Each data point was conducted in triplicate, and the full experiment was repeated 4 times.

Both DHEA and the ubiquinones inhibited the enzyme activity in a statistically significant manner when compared to controls. DHEA was found to inhibit by 72% in vitro the activity of purified G6PDH when compared to control. Both ubiquinones inhibited the activity of purified G6PDH in vitro by an amount that was not statistically significantly different from that of DHEA. Both DHEA and the ubiquinones inhibited the enzyme in a statistically significant manner when compared to controls. Both long chain and short chain CoQs were found to be effective inhibitors of G6PDH.

The above results clearly indicate that CoQ reduced cellular levels of NADPH to an extent similar to DHEA and consequently cellular adenosine levels, and has a therapeutic effect on diseases and conditions associated with them. The present results show that CoQs have a therapeutic effect similar to that of dehydroepiandrosterones. The pathways involved in the present invention, as described above, show the criticality of the results reported here, showing that a dehydroepiandrosterone (DHEA) and tow ubiquinones inhibit NADPH levels in a statistically significant manner. The same dehydroepiandrosterone (DHEA) was shown in Examples 1 and 2 to decrease levels of adenosine in various tissues. The two different ubiquinones employed lowered NADPH levels to a similar extent as DHEA. The NADPH reduction caused by the ubiquinones will, in the case of DHEA, result in lower cellular adenosine levels or adenosine depletion. Thus, in accordance with the invention, both dehydroepiandrosterones and ubiquinones decrease levels of adenosine and are, therefore, useful in the therapy of diseases and conditions where a decrease of adenosine levels or its depletion are desirable, including respiratory and airway diseases such as asthma, bronchoconstriction, lung inflammation and allergies, and the like.

In Examples 46 to 51, micronized anti-sense oligo targeting the adenosine A_1 receptor (EPI 2010) and micronized salmeterol (as the hydroxynaphthoate) are added in the proportions given below either dry or after predispersal in a small quantity of stabilizer, disodium dioctylsulphosuccinate, lecithin, oleic acid or sorbitan solvent to a suspension vessel containing the main bulk of the solvent. The resulting suspension is further dispersed by an appropriate mixing system using, for example, a high shear blender, ultrasonics or a microfluidiser until an ultrafine dispersion is created. The suspension is then continuously recirculated to suitable filling equipment designed for cold fill or pressure filling of solvent. The suspension may be also prepared in a suitable chilled solution of stabilizer, in solvent.

<u>Example 46</u>: Metered Dose Inhaler

Active Ingredient	Target per Actuation
DHEA	200 mg

EPI 2010	1 mg
Stabilizer	5.0 µg
Solvent (1)	23.70 mg
Solvent (2)	61.25 mg

Example 47: Metered Dose Inhaler

Active Ingredient	Target per Actuation
DHEA-S	200 mg
EPI 2010	5 mg
Stabilizer	7.5 µg
Solvent (1)	23.67 mg
Solvent (2)	61.25 mg

Example 48: Metered Dose Inhaler

Active Ingredient	Target per Actuation
Ubiquinone (CoQ10)	200 mg
EPI 2010	30 mg
Stabilizer	25.0 µg
Solvent (1)	23.45 mg
Solvent (2)	61.25 mg

Example 49: Metered Dose Inhaler

Active Ingredient	**Target per Actuation**
DHEA	600 mg µg
EPI 2010	1.0 mg
Stabilizer	15.0 µg
Solvent (1)	23.56 mg
Solvent (2)	61.25 mg

Example 50: Metered Dose Inhaler

Active Ingredient	**Target per Actuation**
DHEA-S	600 mg
EPI 2010	5.0 mg
Stabilizer	15.0 µg
Solvent (1)	23.56 mg
Solvent (2)	61.25 mg

Example 51: Metered Dose Inhaler

Active Ingredient	**Target per Actuation**
Ubiquinone	600 mg
EPI 2010	30.0 mg
Stabilizer	25.0 µg
Solvent (1)	23.43 mg
Solvent (2)	61.25 mg

In the following Examples 43 to 48, the active ingredients are micronized and bulk blended with lactose in the proportions given above. The blend is filled into hard gelatin capsules or cartridges or into specifically constructed double foil blister packs (Rotadisks blister packs, Glaxo® to be administered by an inhaler such as the Rotahaler inhaler (Glaxo®) or in the case of the blister packs with the Diskhaler inhaler (Glaxo®).

Example 52: **Metered Dose Dry Powder Formulation**

Active Ingredient		/cartridge or blister
DHEA		1 mg
EPI 2010		0.05 mg
Lactose Ph. Eur.	to	12.5 or 25.0 mg

Example 53: **Metered Dose Dry Powder Formulation**

Active Ingredient		/cartridge or blister
DHEA-S		1 mg
EPI 2010		0.1 mg
Lactose Ph. Eur.	to	12.5 or 25.0 mg

Example 54: **Metered Dose Dry Powder Formulation**

Active Ingredient		/cartridge or blister
Ubiquinone		1 mg
EPI 2010		0.15 mg
Lactose Ph. Eur.	to	12.5 or 25.0 mg

Example 55: **Metered Dose Dry Powder Formulation**

Active Ingredient		/cartridge or blister
DHEA		1 mg
EPI 2010		0.01 mg
Lactose Ph. Eur.	to	12.5 or 25.0 mg

Example 56: **Metered Dose Dry Powder Formulation**

Active Ingredient		/cartridge or blister
DHEA-S		1 mg
EPI 2010		0.05 mg
Lactose Ph. Eur.	to	12.5 or 25.0 mg

Example 57: **Metered Dose Dry Powder Formulation**

Active Ingredient		/cartridge or blister
Ubiquinone		1 mg
EPI 2010		0.1 mg
Lactose Ph. Eur.	to	12.5 or 25.0 mg

Example 58: **Metered Dose Inhaler Formulation (1)**

Standard 12.5 ml MDI (metered dose inhaler) cans (Presspart Inc., Cary N.C.) are spray-coated with PTFE-FEP-polyamideimide blend (DuPont) and cured according to the vendor's standard procedure. The thickness of the coating is between approximately 1 μm and approximately 20 μm. These cans are then purged of air the valves crimped in place, and a suspension of about 68 mg of micronised beclomethasone dipropionate monohydrate and 1 mg of oligonucleotide in about 6.1 mg water and about 18.2 g P134a is filled through the valve.

Example 59: **Metered Dose Inhaler Formulation (2)**

Standard 12.5 ml MDI cans (Presspart Inc., Cary N.C.) are spray-coated with PTFE-FEP-polyamideimide blend (DuPont) and cured according to the vendor's standard procedure. The thickness of the coating is between approximately 1 μm and approximately 20 μm. These cans are then purged of air the valves crimped in place, and about 50 mg of dehydroepiandrosterone, 1 mg of micronised oligonucleotide and 50 mg of Coenzyme Q10 in about 182 mg ethanol and about 18.2 g P134a is filled through the valve.

Example 60: Metered Dose Inhaler Formulation (3)

Standard 12.5 ml MDI cans (Presspart Inc., Cary N.C.) are spray-coated with PTFE-PES blend (DuPont) as a single coat and cured according to the vendor's standard procedure. The thickness of the coating is between approximately 1 μm and approximately 20 μm. These cans are then purged of air, the valves crimped in place, and a suspension of about 41.0 mg, 21.0 mg, 8.8 mg or 4.4 mg of micronised fluticasone propionate and 2 mg of micronised oligonucleotide in about 12 g P134a is filled through the valve.

Example 61: Metered Dose Inhaler Formulation (4)

Standard 12.5 ml MDI cans (Presspart Inc., Cary N.C.) are spray-coated with PTFE-PES blend (DuPont) as a single coat and cured according to the vendor's standard procedure. The thickness of the coating is between approximately 1 μm and approximately 20 μm. These cans are then purged of air, the valves crimped in place, and a suspension of about 8.8 mg, 22 mg or 44 mg of micronised fluticasone propionate with about 6.4 mg of micronised salmeterol xinafoate and 1 mg of micronised oligonucleotide in about 12 g P134a is filled through the valve.

Example 62: Metered Dose Inhaler Formulation (5)

Standard 12.5 ml MDI cans (Presspart Inc., Cary N.C.) are spray-coated with PTFE-FEP-polyamideimide blend (DuPont) and cured according to the vendor's standard procedure. The thickness of the coating is between approximately 1 μm and approximately 20 μm. These cans are then purged of air the valves crimped in place, and a suspension of about 50mg of micronised dehydroepiandrosterone with about 6.4 mg of micronised salmeterol xinafoate and 2 mg of micronised oligonucleotide in about 12 g P134a is filled through the valve.

Example 63: Metered Dose Inhaler Formulation (6)

Standard 12.5 ml MDI cans (Presspart Inc., Cary N.C.) are spray-coated with PTFE-PES blend (DuPont) as a single coat and cured according to the vendor's standard procedure. The thickness of the coating is between approximately 1 μm and approximately 20 μm. These cans are then purged of air, the valves crimped in place, and a suspension of about 50 mg of micronised dehydroepiandrosterone sulfate and 2 mg of micronised oligonucleotide in about 12 g P134a is filled through the valve.

Example 64: Effect of CoQs & an EA on In Vitro NADPH Levels

Glocose-6-Phosphate Dehydrogenase (G6PD) is an important enzyme that is widespread in mammals, and is involved in the conversion of NADP to NADPH, thereby increasing NADPH levels. An inhibition of the G6PD enzyme, thus, will be expected to result in a reduction of cellular NADPH levels, which event, in turn, will be expected to inhibit pathways that are heavily dependent on NADPH. One such pathway, the so-called One-Carbon-Pool pathway, also known as the Folate Pathway, is directly involved in the production of adenosine by addition of the C_2 and C_8 carbon atoms of the purine ring. Consequently, the inhibition of this pathway will lead to adenosine depletion.

The present invention is broadly applicable to Epiandrosterones (EAs) and Ubiquinones (CoQs). The description of the pathways involved in the present invention are described in the Background section. The present experiment was designed to show that one EA and two CoQs inhibit NADPH levels. DHEA, an Epiandrosterone, has already been shown to decrease levels of adenosine in various tissues. See, Examples 1 and 2 above. The fact that two CoQs are shown to lower NADPH levels to a similar extent as an Epiandrosterone, let alone to a similar extent ensures that the NADPH reduction caused by the CoQs will also result in lower cellular adenosine levels or in adenosine cell depletion. Thus, in accordance with the invention, both Epiandrosterones and Ubiquinones decrease levels of adenosine and, therefore, are useful as medicaments for use in the treatment of diseases where a decrease of adenosine levels or its depletion is desirable, including respiratory diseases such as asthma, bronchoconstriction, lung inflammation and allergies and the like. Both Ubiquinones and DHEA inhibit NADPH levels in a statistically significant manner, when compared to a control. Moreover, the Ubiquinone inhibits NADPH levels to a similar extent as DHEA. The present invention is broadly applicable to the use of Epiandrosterones (EAs) and Ubiquinones (CoQs) to the treatment of respiratory and lung diseases, and other diseases associated with varying levels of adenosine, adenosine hypersensitivity, asthma, bronchoconstriction, and/or lung inflammation and allergies. The

DHEA and Ubiquinones employed in the present experiments are equivalent to those described and exemplified above.

Enzymatic assay of purified G6PDH

The reaction mixture contained 50mM glycyl glycine buffer, pH 7.4, 2 mM D-glucose-6-phosphate, 0.67 mM Beta-NADP, 10 mM MgCL2 and 0.0125 units of G6PDH in a final volume of 3.0 ml. All experiments were repeated 4 times.

The control group contained 3 samples that were added no DHEA or Ubiquinone. The experimental group contained a similar number of samples (3) for each concentration of DHEA or Ubiquinone. One group was added DHEA (in triplicate) at different concentrations. A second group was added different concentrations of a CoQ of long side chain (in triplicate), and a third group received a CoQ of short side chain (in triplicate), both at various doses in the μM range.

The reaction was started by addition of the enzyme, and the increase in absorbance at 340 nm was measured for 5 minutes. Each data point was conducted in triplicate, and the full experiment was repeated 4 times.

Both DHEA and the Ubiquinones inhibited the enzyme activity in a statistically significant manner when compared to controls. DHEA was found to inhibit by 72% in vitro the activity of purified G6PDH when compared to control. Both Ubiquinones inhibited the activity of purified G6PDH in vitro by an amount that was not statistically significantly different from that of DHEA. Both DHEA and the Ubiquinones inhibited the enzyme in a statistically significant manner when compared to controls. Both long chain and short chain CoQs were found to be effective inhibitors of G6PDH.

The above results clearly indicate that CoQ reduced cellular levels of NADPH to an extent similar to DHEA and consequently cellular adenosine levels, and has a therapeutic effect on diseases and conditions associated with them. The present results show that CoQs have a therapeutic effect similar to that of epiandrosterones. The pathways involved in the present invention, as described above, show the criticality of the results reported here, showing that an Epiandrosterone (DHEA) and two Ubiquinones inhibit NADPH levels in a statistically significant manner. The same epiandrosterone (DHEA) was shown in Examples 1 and 2 to decrease levels of adenosine in various tissues. The two different Ubiquinones employed lowered NADPH levels to a similar extent as DHEA. The NADPH reduction caused by the Ubiquinones will, in the case of DHEA, result in lower cellular adenosine levels or adenosine depletion. Thus, in accordance with the invention, both Epiandrosterones and Ubiquinones decrease levels of adenosine and are, therefore, useful in the therapy of diseases and conditions where a decrease of adenosine levels or its depletion are desirable, including respiratory and airway diseases such as asthma, bronchoconstriction, lung inflammation and allergies, and the like.

These are clearly superior results, which could not have been expected based on the knowledge of the art at the time of this invention. The experimental data and results provided are clearly enabling of the effect of ubiquinones on adenosine cellular levels and, therefore, on its therapeutic affect on diseases and conditions associated with them, as described and claimed in this patent.

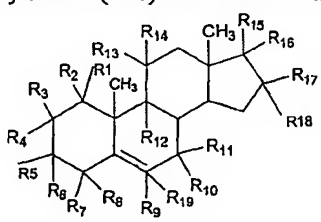
The foregoing examples are illustrative of the present invention, and are not to be construed as limiting thereof. The invention is defined by the following claims, with equivalents of the claims to be included therein.

WHAT IS CLAIMED AS NOVEL & UNOBVIOUS

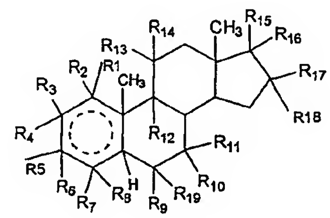
IN UNITED STATES LETTERS PATENT IS:

1. A pharmaceutical composition, comprising a pharmaceutically or veterinarily acceptable carrier or diluent, and prophylactic or therapeutic amounts of a first and second active agents;

the first active agent comprising an oligonucleotide(s) (oligo(s)) that is anti-sense to the initiation codon, the coding region, the 5'-end or the 3'-end genomic flanking regions, the 5' and 3' intron-exon junctions, or regions within 2 to 10 nucleotides of the junctions of one or more gene(s) encoding or to regulatory sequence(s) associated with one or more target polypeptide(s) associated with lung and/or nasal airway dysfunction, or anti-sense to the corresponding mRNA; or combinations or mixtures of the oligo(s); and the second active agent comprising an anti-inflammatory steroid (AIS) of chemical formula

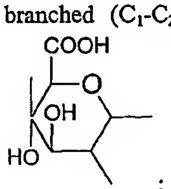

(Ia)

or


(Ib)

wherein R_1, R_2, R_3, R_4, R_6, R_7, R_8, R_9, R_{10}, R_{12}, R_{13}, R_{14} and R_{19} are independently H, OR, halogen, $(C_1\text{-}C_{10})$ alkyl, $(C_1\text{-}C_{10})$ alkene, $(C_1\text{-}C_{10})$ alkyne, $(C_1\text{-}C_{10})$ alkoxy, or two or more of R_1, R_2, R_3, R_4, R_6, R_7, R_8, R_9, R_{10}, R_{12}, R_{13}, R_{14} and R_{19} can be linked by combination of the atoms of C, O, N, S, P and Si to form a 3 to 15 member ring(s), in the α- and/or β- configuration;

R_5, R_6, R_{10}, and R_{11} are independently OH, SH, H, halogen, pharmaceutically acceptable ester, pharmaceutically acceptable thioester, pharmaceutically acceptable ether, pharmaceutically acceptable thioether, pharmaceutically acceptable inorganic esters, pharmaceutically acceptable monosaccharide, disaccharide or oligosaccharide, spirooxirane, spirothirane, $-OSO_2R_{20}$, $-OPOR_{20}R_{21}$, $(C_1\text{-}C_{10})$ alkyl, $(C_1\text{-}C_{10})$ alkene, $(C_1\text{-}C_{10})$ alkyne or OR_{23}, wherein, R_{23} is hydrogen or SO_2OM, wherein M is selected from H, Na, sulfatide; $-SO_2O\text{-}CH_2CH(OCOR_{24})CH_2OCOR_{25}$ or phosphatide $-PO_2O\text{-}CH_2CH(OCOR_{24})CH_2OCOR_{25}$, wherein R_{24} and R_{25}, which may be the same or different, are straight or branched $(C_1\text{-}C_{20})$ alkyl, $(C_1\text{-}C_{20})$ alkene, $(C_1\text{-}C_{20})$ alkyne, sugar, polyethyleneglycol (PEG) or glucuronide



;

R_5 and R_6 taken together are =O;

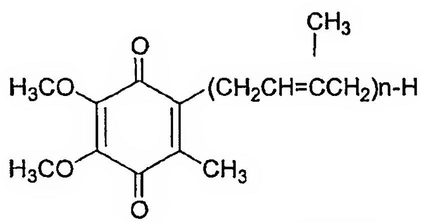
R_{10} and R_{11} taken together are =O;

R_{15} is (1) H, halogen, $(C_1\text{-}C_{10})$ alkyl, $(C_1\text{-}C_{10})$ alkene, $(C_1\text{-}C_{10})$ alkyne, or $(C_1\text{-}C_{10})$ alkoxy when R_{16} is $-C(O)OR_{22}$, (2) H, halogen, OH, $(C_1\text{-}C_{10})$ alkyl, $(C_1\text{-}C_{10})$ alkene or $(C_1\text{-}C_{10})$ alkyne, when R_{16} is halogen, OH, $(C_1\text{-}C_{10})$ alkyl, $(C_1\text{-}C_{10})$ alkene or $(C_1\text{-}C_{10})$ alkyne, (3) H, halogen, $(C_1\text{-}C_{10})$ alkyl, $(C_1\text{-}C_{10})$ alkenyl, $(C_1\text{-}C10)$ alkynyl, formyl, $(C_1\text{-}C_{10})$ alkanoyl or epoxy when R_{16} is OH, (4) OR, SR, SH, H, halogen, pharmaceutically acceptable ester, pharmaceutically acceptable thioester, pharmaceutically acceptable ether, pharmaceutically acceptable thioether, pharmaceutically acceptable inorganic esters, pharmaceutically acceptable monosaccharide, disaccharide or oligosaccharide, spirooxirane, spirothirane, $-OSO_2R_{20}$ or $-OPOR_{20}R_{21}$ when R_{16} is H, or R_{15} and R_{16} taken together are =O;

R_{17} and R_{18} are independently (1) H, -OH, halogen, (C_1-C_{10}) alkyl, (C_1-C_{10}) alkene, (C_1-C_{10}) alkyne or $-(C_1-C_{10})$ alkoxy when R_6 is H OR, halogen, (C_1-C_{10}) alkyl or $-C(O)OR_{22}$, (2) H, $(C_1-C_{10}$ alkyl$)_n$ amino, $(C_1-C_{10}$ alkene$)_n$ amino, $(C_1-C_{10}$ alkyne$)_n$ amino, $((C_1-C_{10})$ alkyl$)_n$ amino-(C_1-C_{10}) alkyl, $((C_1-C_{10})$ alkene$)_n$ amino-(C_1-C_{10}) alkyl, $((C_1-C_{10})$ alkyne$)_n$ amino-(C_1-C_{10}) alkyl, $((C_1-C_{10})$ alkyl$)_n$ amino-(C_1-C_{10}) alkene, $((C_1-C_{10})$ alkene$)_n$ amino-(C_1-C_{10}) alkene, $((C_1-C_{10})$ alkyne$)_n$ amino-(C_1-C_{10}) alkene, $((C_1-C_{10})$ alkyl$)_n$ amino-(C_1-C_{10}) alkyne, $((C_1-C_{10})$ alkene$)_n$ amino-(C_1-C_{10}) alkyne, $((C_1-C_{10})$ alkyne$)_n$ amino-(C_1-C_{10}) alkyne, (C_1-C_{10}) alkoxy, hydroxy - (C_1-C_{10}) alkyl, hydroxy - (C_1-C_{10}) alkene, hydroxy - (C_1-C_{10}) alkyne, (C_1-C_{10}) alkoxy - (C_1-C_{10}) alkyl, (C_1-C_{10}) alkoxy - (C_1-C_{10}) alkene, (C_1-C_{10}) alkoxy - (C_1-C_{10}) alkyne, $(\text{halogen})_m$ (C_1-C_{10}) alkyl, $(\text{halogen})_m$ (C_1-C_{10}) alkene, $(\text{halogen})_m$ (C_1-C_{10}) alkyne, (C_1-C_{10}) alkanoyl, formyl, (C_1-C_{10}) carbalkoxy or (C_1-C_{10}) alkanoyloxy when R_{15} and R_{16} taken together are =O, (3) R_{17} and R_{18} taken together are =O; (4) R_{17} and R_{18} taken together with the carbon to which they are attached form a 3-6 member ring containing 0 or 1 oxygen atom; or (5) R_{15} and R_{17} taken together with the carbons to which they are attached form an epoxide ring; R_{20} and R_{21} are independently OH, pharmaceutically acceptable ester or pharmaceutically acceptable ether; R_{22} is H, $(\text{halogen})_m$ (C_1-C_{10}) alkyl, $(\text{halogen})_m$ (C_1-C_{10}) alkene, $(\text{halogen})_m$ (C_1-C_{10}) alkyne, (C_1-C_{10}) alkyl, (C_1-C_{10}) alkene or (C_1-C_{10}) alkyne; n is 0, 1 or 2; and m is 1, 2 or 3,

; or pharmaceutically or veterinarily acceptable salts thereof; and/or

a ubiquinone of the chemical formula



(II)

(CoQ_n);

wherein n=1 to 12, or pharmaceutically or veterinarily acceptable salts thereof; the first and second agents being present in amounts effective for reducing or depleting levels of, or reducing sensitivity to, adenosine, reducing levels of adenosine receptors, producing bronchodilation, increasing levels of ubiquinone or lung surfactant in a subject's tissue (s), or treating bronchoconstriction, lung inflammation or lung allergies or a respiratory or lung disease or condition.

2. The composition of claim 1, wherein the oligo contains up to about 15% A.

3. The composition of claim 1, wherein the oligo(s) of the first active agent is (are) anti-sense to the initiation codon, the coding region, the 5'-end or the 3'-end genomic flanking regions, the 5' or 3' intron-exon junctions, and regions within 2 to 10 nucleotides of the junctions of at least one oncogene(s) or a gene(s) encoding, or regulating expression of, a target polypeptide(s) associated with lung and/or nasal airway dysfunction or cancer, is (are) anti-sense to the corresponding mRNA(s). Multiple target anti-sense oligo(s) (MTAs) or combinations thereof; the polypeptides comprising peptide factors and transmitters, antibodies, cytokines or chemokines, enzymes, binding proteins, adhesion molecules, their receptors, or malignancy associated proteins.

4. The composition of claim 3, wherein the oligo(s) is (are) anti-sense to the initiation codon, the coding region, the 5'-end or the 3'-end genomic flanking regions, the 5' or 3' intron-exon junctions, or regions within 2 to 10 nucleotides of the junctions of at least one oncogene(s) or a gene(s) encoding, or regulating expression of, a target polypeptide(s) associated with lung and/or nasal airway dysfunction or is (are) anti-sense to the oncogene mRNA, or the corresponding mRNA; or MTAs or combinations thereof; wherein the polypeptides comprise of transcription factors, stimulating or activating peptide factors, cytokines, cytokine receptors, chemokines, chemokine receptors, adenosine receptors, bradykinin receptors, endogenously produced specific or non-specific enzymes, immunoglobulins or antibodies, antibody receptors, central nervous system (CNS) or peripheral nervous or non-nervous system receptors, CNS or peripheral nervous or non-nervous system peptide transmitters, adhesion molecules, defensins, growth factors, vasoactive peptides and receptors, binding proteins, or malignancy associated proteins.

5. The composition of claim 4, wherein the encoded polypeptide(s) comprise(s) one or more adenosine receptors A_1, A_{2a}, A_{2b} or A_3, bradykinin receptors B1 or B2, NfκB Transcription Factor, Interleukin-8

Receptor (IL-8 R), Interleukin 5 Receptor (IL-5 R), Interleukin 4 Receptor (IL-4 R), Interleukin 3 Receptor (IL-3 R), Interleukin-1β (IL-1β), Interleukin 1β Receptor (IL- 1β R), Eotaxin, Tryptase, Major Basic Protein, β2-adrenergic Receptor Kinase, Endothelin Receptor A, Endothelin Receptor B, Preproendothelin, Bradykinin B2 Receptor, IgE High Affinity Receptor, Interleukin 1 (IL-1), Interleukin 1 Receptor (IL-1 R), Interleukin 9 (IL-9), Interleukin-9 Receptor (IL-9 R), Interleukin 11 (IL-11), Interleukin-11 Receptor (IL-11 R), Inducible Nitric Oxide Synthase, Cyclo-oxygenase-1 (COX-1), Cyclo-oxygenase-2 (COX-2), Intracellular Adhesion Molecule 1 (ICAM-1) Vascular Cellular Adhesion Molecule (VCAM), Rantes, Endothelial Leukocyte Adhesion Molecule (ELAM-1), Monocyte Activating Factor, Neutrophil Chemotactic Factor, Neutrophil Elastase, Defensin 1, 2 and 3, Muscarinic Acetylcholine Receptors, Platelet Activating Factor, Tumor Necrosis Factor α, 5-lipoxygenase, Phosphodiesterase IV, Substance P, Substance P Receptor, Histamine Receptor, Chymase, CCR-1 CC Chemokine Receptor, CCR-2 CC Chemokine Receptor, CCR-3 CC Chemokine Receptor, CCR-4 CC Chemokine Receptor, CCR-5 CC Chemokine Receptor, Prostanoid Receptors, GATA-3 Transcription Factor, Neutrophil Adherence Receptor, MAP Kinase, Interleukin-9 (IL-9), NFAT Transcription Factors, STAT 4, MIP-1α, MCP-2, MCP-3, MCP-4, Cyclophillins, Phospholipase A2, Basic Fibroblast Growth Factor, Metalloproteinase, CSBP/p38 MAP Kinase, Tryptase Receptor, PDG2, Interleukin-3 (IL-3), Interleukin-1β (IL-1β), Cyclosporin A-Binding Protein, FK5-Binding Protein, $\alpha4\beta1$ Selectin, Fibronectin, $\alpha4\beta7$ Selectin, Mad CAM-1, LFA-1 (CD11a/CD18), PECAM-1, LFA-1 Selectin, C3bi, PSGL-1, E-Selectin, P-Selectin, CD-34, L-Selectin, p150,95, Mac-1 (CD11b/CD18), Fucosyl transferase, VLA-4, CD-18/CD11a, CD11b/CD18, ICAM2 and ICAM3, C5a, CCR3 (Eotaxin Receptor), CCR1, CCR2, CCR4, CCR5, LTB-4, AP-1 Transcription Factor, Protein kinase C, Cysteinyl Leukotriene Receptor, Tachychinnen Receptors (tach R), IκB Kinase 1 & 2, STAT 6, c-mas or NF-Interleukin-6 (NF-IL-6).

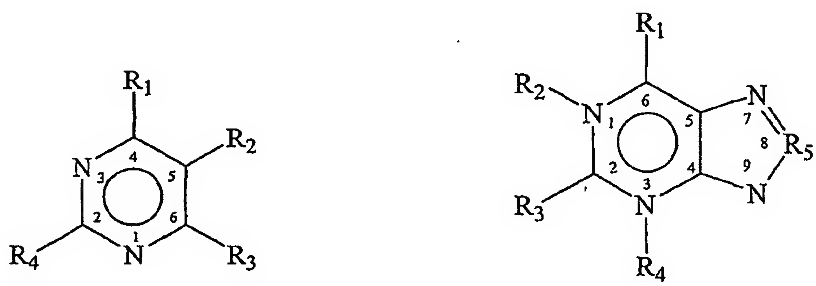
6. The composition of claim 4, wherein the encoded polypeptide(s) comprise(s) a H2A histone family member N, Tubulin, beta polypeptide, ELL gene (11-19 lysine-rich leukemia gene);7-dehydrocholesterol reductase, ADP-ribosylation factor-like 7, Karyopherin alpha 2 (RAG cohort 1, importin alpha 1), EST (AI038433), EST (AI122689), EST (AI092623), ESTs (AI095492), ESTs (AI138216), ESTs (AI128305), ESTs (AI125228), ESTs (AI041482), ESTs (AI051839), Homo sapiens mRNA; cDNA DKFZp434A1716, ESTs (AI096522), ESTs (AI122807), ESTs (AI041212), EST (AI125651), Enolase 1, (alpha), EST (AI024215), EST (AI034360), Homo sapiens mRNA; cDNA DKFZp564H0764, Homo sapiens mRNA for KIAA1363 protein, partial cds, Potassium voltage-gated channel, shaker-related subfamily, beta member 2, ER-associated DNAJ; ER-associated Hsp40 co-chaperone; hDj9; ERj3, ESTs, Weakly similar to p38 protein [H.sapiens] (AA906703), CGI-142, ESTs (AA463249), Homo sapiens clone 25058 mRNA sequence ESTs (R49144), Squamous cell carcinoma antigen 1, ESTs (AA425700), Myosin X, ESTs (AA459692), Epithelial protein lost in neoplasm beta, CD44 antigen (homing function and Indian blood group system), Coagulation factor III (thromboplastin, tissue factor), ESTs (AA909635), Adducin 1 (alpha), 5' Nucleotidase (CD73), ESTs, moderately similar to semaphorin C [M.musculus] (AA293300), ESTs (AA278764), ESTs (AA678160), Calmodulin 2 (phosphorylase kinase, delta), ESTs (R42770), Chloride intracellular channel 1, High-mobility group (nonhistone chromosomal) protein 17, Ubiquitin carrier protein, Tubulin, alpha 1 (testis specific), Transglutaminase 2 (C polypeptide, protein-glutamine-gamma-glutamyltransferase), Sparc/osteonectin, cwcv and kazal-like domains proteoglycan (testican), Proteasome (prosome, macropain) 26S subunit, non-ATPase, 2, Tubulin, beta polypeptide, Filamin B, beta (actin-binding protein-278), Stanniocalcin, Low density lipoprotein receptor (familial hypercholesterolemia), Plectin 1, intermediate filament binding protein, 500kD, S100 calcium-binding protein A2, Immediate early response 3, Calpain, large polypeptide L2, Pleckstrin homology-like domain, family A, member 1, Melanoma adhesion molecule, CD44 antigen (homing function and Indian blood group system), Programmed cell death 5, Hexokinase 1, Vascular endothelial growth factor, Integrin, alpha 2 (CD49B, alpha 2 subunit of VLA-2 receptor), Calumenin, Syntaxin 11, Diphtheria toxin receptor (heparin-binding epidermal growth factor-like growth factor), Fn14 for type I transmembrane protein, Nef-associated factor 1, High-mobility group (nonhistone chromosomal) protein isoforms I and Y, Catechol-O-methyltransferase, C-terminal binding protein 1, Collagen, type XVII, alpha 1, ESTs (N58473), Farnesyl-diphosphate farnesyltransferase 1 RNA helicase-related protein, Interferon stimulated gene (20kD), Steroid-5-alpha-reductase, alpha polypeptide 1 (3-oxo-5 alpha-steroid delta 4-dehydrogenase alpha 1), Prostaglandin-endoperoxide synthase 2 (prostaglandin G/H synthase and cyclooxygenase), Laminin, alpha 3 (nicein (150kD), kalinin (165kD), BM600 (150kD), epilegrin), Collagen, type XVII, alpha 1, Keratin 18, Heparan sulfate (glucosamine) 3-O-sulfotransferase 1, Tubulin, alpha 2, Adenylyl cyclase-associated protein, Forkhead box D1, Cathepsin C, ESTs, Highly similar to AF151802_1 CGI-44 protein [H.sapiens] (T74688), Ribonucleotide reductase

M2 polypeptide, Laminin, gamma 2 (nicein (100kD), kalinin (105kD), BM600 (100kD), Herlitz junctional epidermolysis bullosa)), Homo sapiens mRNA; cDNA DKFZp586P1622 (from clone DKFZp586P1622), ESTs, Weakly similar to /prediction (AA284245), or Lactate dehydrogenase A.

7. The composition of claim 1, wherein one or more As of the first active agent is(are) substituted by a universal base comprising a heteroaromatic base that binds to thymidine or uridine but has antagonist activity or less than about 0.3 of the adenosine agonist or antagonist activity at the adenosine A_1, A_{2a}, A_{2b} or A_3 receptors.

8. The composition of claim 7, wherein the heteroaromatic base(s) comprise(s) pyrimidines or purines, which may be substituted by O, halo, NH_2, SH, SO, SO_2, SO_3, COOH, branched or fused primary or secondary amino, alkyl, alkenyl, alkynyl, cycloalkyl, heterocycloalkyl, aryl, heteroaryl, alkoxy, alkenoxy, acyl, cycloacyl, arylacyl, alkynoxy, cycloalkoxy, aroyl, arylthio, arylsulfoxyl, halocycloalkyl, alkylcycloalkyl, alkenylcycloalkyl, alkynylcycloalkyl, haloaryl, alkylaryl, alkenylaryl, alkynylaryl, arylalkyl, arylalkenyl, arylalkynyl, arylcycloalkyl, all of which may be further substituted by O, halo, NH_2, primary, secondary or tertiary amine, SH, SO, SO_2, SO_3, cycloalkyl, heterocycloalkyl or heteroaryl.

9. The composition of claim 7, wherein the purines are substituted at positions 1, 2, 3, 6, and/or 8, the pyrimidines are substituted at positions 2, 3, 4, 5 and/or 6, and the purines and pyrimidines have the chemical formula



pyrimidines or purines

wherein R^1, R^2, R^3, R^4 and R^5 are independently H, alkyl, alkenyl or alkynyl and R^3 is H, aryl, dicycloalkyl, dicycloalkenyl, dicycloalkynyl, cycloalkyl, cycloalkenyl, cycloalkynyl, O-cycloalkyl, O-cycloalkenyl, O-cycloalkynyl, NH_2-alkylamino-ketoxyalkyloxy-aryl, or mono or dialkylaminoalkyl-N-alkylamino-SO_2aryl, and R4 and R5 are independently R1 and together are R3, and the pyrimidines and purines optionally comprise theophylline, caffeine, dyphylline, etophylline, acephylline piperazine, bamifylline, enprofylline or xanthine.

10. The composition of claim 9, wherein the universal base of the first active agent comprises 3-nitropyrrole-2'-deoxynucleoside, 5-nitro-indole, 2-deoxyribosyl-(5-nitroindole), 2-deoxyribofuranosyl-(5-nitroindole), 2'-deoxyinosine, 2'-deoxynebularine, 6H, 8H-3,4-dihydropyrimido [4,5-c] oxazine-7-one or 2-amino-6-methoxyaminopurine.

11. The composition of claim 1, wherein if present in the first active agent(s), one or more methylated cytocine(s) (^mC) is(are) substituted for a C in or to form one or more CpG dinucleotide(s).

12. The composition of claim 1, wherein one or more mononucleotide(s) of the first active agent(s) is(are) linked or modified by one or more of methylphosphonate, 5'-N-carbamate, phosphotriester, phosphorothioate, phosphorodithioate, boranophosphate, formacetal, thioformacetal, thioether, carbonate, carbamate, sulfate, sulfonate, sulfamate, sulfonamide, sulfone, sulfite, sulfoxide, sulfide, hydroxylamine, methylene(methyimino) (MMI), methoxymethyl (MOM), methoxyethyl (MOE), methyleneoxy (methylimino) (MOMI), 2'-O-methyl, phosphoramidate, or C-5 substituted residues.

13. The composition of claim 12, wherein one or more mononucleotide residue(s) of the first active agent(s) are linked by phosphorothioate residues.

14. The composition of claim 1, wherein the anti-sense oligo of the first active agent(s) comprise(s) about 7 to about 60 mononucleotides.

15. The composition of claim 1, wherein the anti-sense oligo of the first active agent(s) comprise(s) fragments 1, 3, 5, 7 and 8 to 2498 (SEQ ID NOS: 1 through 2498).

16. The composition of claim 1, wherein the anti-sense oligo of the first active agent(s) is(are) operatively linked to, or complexed with, a cell internalized or up-taken agent(s) or a cell targeting agent(s).

17. The composition of claim 15, wherein the cell internalized or up-taken agent comprises transferrin, asialoglycoprotein or streptavidin, and the cell targeting agent comprises a prokaryotic or eukaryotic vector or plasmid.

18. The composition of claim 1, wherein the oligo contains up to about 10% A.

19. The composition of claim 1, wherein the oligo(s) of the first active agent(s) is(are) hybridized to a ribonucleic acid or a deoxyribonucleic acid and delivered as a double stranded agent.

20. The composition of claim 1, wherein the carrier or diluent comprises a gaseous, liquid, or solid carrier or diluent, and the active agents are present in an amount of about 0.01 to about 99.99 w/w of the composition.

21. The composition of claim 20, further comprising an agent selected from other therapeutic agents, surfactants, flavoring or coloring agents, fillers, volatile oils, buffering agents, dispersants, RNA inactivating agents, anti-oxidants, flavoring agents, propellants or preservatives.

22. The composition of claim 21, wherein the other therapeutic or bioactive agent(s) is (are) selected from analgesics, pre-menstrual medications, menopausal agents, anti-aging agents, anti-anxyolytic agents, mood disorder agents, anti-depressants, anti-bipolar mood agents, anti-schyzophrenic agents, anti-cancer agents, alkaloids, blood pressure controlling agents, muscle relaxants, steroids, soporific agents, anti-ischemic agents, anti-arrythmic agents, contraceptives, vitamins, minerals, tranquilizers, neurotransmitter regulating agents, wound healing agents, anti-angyogenic agents, cytokines, growth factors, B-adrenergic receptor agonists, anti-metastatic agents, antacids, anti-histaminic agents, anti-bacterial agents, anti-viral agents, anti-gas agents, appetite suppressants, sun screens, emollients, skin temperature lowering products, radioactive phosphorescent or fluorescent contrast diagnostic or imaging agents, libido altering agents, bile acids, laxatives, anti-diarrheic agents, skin renewal agents, hair growth agents, analgesics, pre-menstrual medications, anti-menopausal agents, hormones, anti-aging agents, anti-anxiolytic agents, nociceptic agents, mood disorder agents, anti-depressants, anti-bipolar mood agents, anti-schizophrenic agents, anti-cancer agents, alkaloids, blood pressure controlling agents, other hormones, other anti-inflammatory agents, agents for treating arthritis, burns, wounds, chronic bronchitis, chronic obstructive pulmonary disease (COPD), inflammatory bowel disease such as Crohn's disease, ulcerative colitis, autoimmune disease, or lupus erythematosus, muscle relaxants, soporific agents, anti-ischemic agents, anti-arrhythmic agents, contraceptives, vitamins, minerals, tranquilizers, neurotransmitter regulating agents, wound and burn healing agents, anti-angiogenic agents, cytokines, growth factors, anti-metastatic agents, antacids, anti-histaminic agents, anti-bacterial agents, anti-viral agents, anti-gas agents, agents for reperfusion injury, counteracting appetite suppressants, sun screens, emollients, skin temperature lowering products, radioactive phosphorescent or fluorescent contrast diagnostic or imaging agents, libido altering agents, bile acids, laxatives, anti-diarrheic agents, skin renewal agents or hair growth agents.

23. The composition of claim 22, wherein the surfactant comprises surfactant protein A, surfactant protein B, surfactant protein C, surfactant protein D and surfactant Protein E, di-saturated phosphatidyl choline (other than dipalmitoyl), dipalmitoyl phosphatidyl choline, phosphatidyl choline, phosphatidyl glycerol, phosphatidyl inositol, phosphatidyl ethanolamine, phosphatidyl serine; phosphatidic acid, ubiquinones, lysophosphatidyl ethanolamine, lysophosphatidyl choline, palmitoyl- lysophosphatidyl choline, dehydroepiandrosterone, dolichols, sulfatidic acid, glycerol-3-phosphate, dihydroxyacetone phosphate, glycerol, glycero-3-phosphocholine, dihydroxy acetone, palmitate, cytidine diphosphate (CDP) diacyl glycerol, CDP choline, choline, choline phosphate; natural or artificial lamellar bodies as carrier surfactant vehicles, omega-3 fatty acids, polyenic acid, polyenoic acid, lecithin, palmitinic acid, non-ionic block copolymers of ethylene or propylene oxides, polyoxypropylene, monomeric or polymeric, polyoxyethylene, monomeric and polymeric, poly (vinyl amine) with dextran and/or alkanoyl side chains, Brij 35, Triton X-100 or synthetic surfactants ALEC, Exosurf, Survan or Atovaquone.

24. The composition of claim 1, comprising one or more oligo(s), an anti-inflammatory steroid(s) of formula (Ia) or (Ib), a steroid, a surfactant, and a carrier or diluent for the oligo.

25. The composition of claim 1, wherein the second active agent comprises CoQ_n, wherein n is 1 to 10.

26. The composition of claim 1, wherein the second active agent comprises CoQ_n, wherein n is 6 to

10.

27. The composition of claim 1, wherein the second active agent comprises CoQ_n, wherein n is 10.

28. The composition of claim 1, wherein the second active agent comprises an anti-inflammatory steroid (AIS) of formula (Ia) selected from dehydroepiandrosterone, wherein R and R^1 are H and the broken line represents a double bond, 16-alpha bromodehydroepiandrosterone wherein R is Br, R^1 is H and the broken line represents a double bond, 16-alphafluorodehydroepiandrosterone wherein R is F, R^1 is H and the broken line represents a double bond, etiocholanolone, wherein R and R1 are each hydrogen and the broken line represents a single bond, dehydroepiandrosterone sulfate, wherein R is H, R1 is SO_2OM and M is a sulfatide group as defined above, and the broken line represents a double bond, the compound of formula (Ia), R is halogen selected from Br, Cl or F, R1 is H, and the broken line represents a double bond, 16-alpha-fluorodehydro-epiandrosterone, or pharmaceutically or veterinarily acceptable salts thereof.

29. The composition of claim 1, wherein the oligo(s) of the first agent contains up to about 5% A.

30. The composition of claim 1, wherein the oligo(s) of the first agent is A free.

31. The composition of claim 1, wherein the second active agent comprises an anti-inflammatory steroid (AIS) of formula (Ib), wherein R^{15} and R^{16} together are =O; R^5 is -OH; R^5 is $-OSO_2R^{20}$; R^{15} and R^{20} together is H; or pharmaceutically or veterinarily acceptable salts thereof.

32. The composition of claim 1, wherein the second active agent comprises an AIS selected from budesonide, testosterone, progesterone, fluticasone, beclomethasone, prednisone, momethasone, estrogen, dexamethasone, hydrocortisone, triamcinolone, flunisolide, methylprednisolone prednisone, hydrocortisone, or analogues thereof.

33. The composition of claim 1, wherein the active agents are present in an amount of about 0.01 to about 99.99 w/w of the composition.

34. The composition of claim 1, wherein the second active agent comprises an anti-inflammatory steroid (AIS) selected from 21-acetoxypregnenolone ((3β)-21-(acetyloxy)-3-hydroxypregn-5-en-20-one); alclometasone ((7α, 11β, 16α)-7-Chloro-11, 17, 21-trihydroxy-16-methylpregna-1,4-diene-3,20-dione), or its 17,21-dipropionate form ($C_{28}H_{37}ClO_7$); algestone ((16α)-16,17-dihydroxypregn-4-ene-3,20-dione), its cyclic acetal with acetone form ($C_{24}H_{34}O_4$), or its 16α-methyl ether form ($C_{22}H_{32}O_4$); amcinonide ((11β, 16α)-21-(acetyloxy)-16,17-[cyclopentylidenebis(oxy)]-9-fluoro-11-hydroxypregna-1,4-di-ene-3,20-dione); beclomethasone ((11β,16β)-9-chloro-11,17,21-trihydroxy-16-methylpregna-1,4-diene-3,20-dione), its dipropionate form ($C_{28}H_{37}ClO_7$), or its monopropionate form; betamethasone ((11β, 16β)-9-fluoro-11, 17, 21-trihydroxy-16-methylpregna-1,4-diene-3,20-dione), its 21-acetate form ($C_{24}H_{31}FO_6$), its 21-adamantoate form ($C_{33}H_{43}FO_6$), its 17-benzoate form ($C_{29}H_{33}FO_6$), its 17, 21-dipropionate form ($C_{28}H_{37}FO_7$), its 17-valerate form ($C_{27}H_{37}FO_6$), or its 21-phospate disodium salt form ($C_{22}H_{28}FNa_2O_8P$); budesonide ((11β, 16α)-16,17-[butylidenebis(oxy)]-11, 21-dihydropregna-1,4-diene-3,20-dione); chloroprednisone ((6α)-chloro-17,21-dihydroxypregna-1,4-diene-3,11,20-trione), or its 21-acetate from ($C_{23}H_{27}ClO_6$); ciclesonide; clobetasol ((11β,16β)-21-chloro-9-fluoro-11,17-dihydroxy-16-methylpregna-1,4-diene-3,20-dione), or its 17-propionate form ($C_{25}H_{32}ClFO_5$); clobetasone ((16β)-21-chloro-9-fluoro-17-hydroxy-16-methylpregna-1,4-diene-3,11,20-trione), or its 17-butyrate form ($C_{26}H_{32}ClFO_5$); clocortolone ((6α,11β,16α)-9-chloro-6-fluoro-11,21-dihydroxy-16-methylpregna-1,4-diene-3,20-dione), its 21-acetate form ($C_{24}H_{30}ClFO_5$), or its 21-pivalate form ($C_{27}H_{36}ClFO_5$); cloprednol ((11β)-6-chloro-11,17,21-trihydroxypregna-1,4,6-triene-3,20-dione); coroxon (phosphoric acid 3-chloro-4-methyl-2-oxo-2H-1-benzopyran-7-yl diethyl ester); cortisone (17,21-dihydroxypregn-4-ene-3,11,20-trione), its 21-acetate form ($C_{23}H_{30}O_6$), or its 21-cyclopentanepropionate form ($C_{29}H_{40}O_6$); cortivazol ((11β,16α)-21-(acetyloxy)-11,17-dihydroxy-6,16-dimethyl-2'-phenyl-2'H-pregna-2,4,6-trieno[3,2-c]pyrazol-20-one); deflazacort ((11β,16β)-21-(acetyloxy)-11-hydroxy-2'-methyl-5'H-pregna-1,4-dieno[17,16-d]oxazole-3,20-dione); desonide ((11β,16α)11,21-dihydroxy-16,17-[(1-methylethylidene)bis(oxy)]pregna-1,4-diene-3,20-dione); desoximetasone ((11β,16α)-9-fluoro-11, 21-dihydroxy-16-methylpregna-1,4-diene-3,20-dione); dexamethasone ((11β,16α)-9-fluoro-11,17,21-trihydroxy-16-methylpregna-1,4-diene-3,20-dione), its 21-acetate form ($C_{24}H_{31}FO_6$), its 21-(3,3-dimethylbutyrate) form ($C_{28}H_{39}FO_6$; Chemerda et al., US Patent No. 2,939,873), its 21-diethylaminoacetate form ($C_{28}H_{41}FNO_6$), its 21-isonicotinate form ($C_{28}H_{41}FNO_6$), its 17,21-dipropionate form ($C_{28}H_{37}FNO_6$), or its 21-palmitate form ($C_{38}H_{59}FO_6$); diflorasone ((6α,11β,16β)-6,9-difluoro-11,17,21-trihydroxy-16-methylpregna-1,4-diene-3,20-dione), or its diacetate form ($C_{26}H_{32}F_2O_7$); diflucortolone ((6α,11β,16α)-6,9-difluoro-11,21-dihydroxy-16-methylpregna-1,4-diene-3,20-dione),

or its 21-valerate form ($C_{27}H_{36}F_2O_5$); difluprednate ((6α,11β)-21-(acetyloxy)-6,9-difluoro-11-hydroxy-17-(1-oxobutoxy)pregna-1,4-diene-3,20-dione); enoxolone ((3β,20β)-3-hydroxy-11-oxoolean-12-en-29-oic acid), or its 18α-hydrogen form; fluazacort ((11β,16β)-21-(acetyloxy)-9-fluoro-11-hydroxy-2'-methyl-5'H-pregna-1,4-dieno[17,16-d]oxazole-3,20-dione); flucloronide ((6α,11β,16α)-9,11-dichlro-6-fluoro-21-hydroxy-16,17-[(1-methylethylidene)bis(oxy)]-pregna-1,4-diene-3,20-dione); flumethasone ((6α,11β,16α)-6,9-difluoro-11,17,21-trihydroxy-16-methylpregna-1,4-diene-3,20-dione), its 21-acetate form ($C_{24}H_{30}F_2O_6$), or its 21-pivalate form ($C_{27}H_{36}F_2O_6$); flunisolide ((6α,11β,16α)-6-fluoro-11,21-dihydroxy-16,17-[(1-methylethylidene) bis(oxy)]pregna-1,4-diene-3,20-dione), or its 21-acetate form ($C_{26}H_{33}FO_7$); fluocinolone acetate ((6α,11β,16α)-6,9-difluoro-11,21-dihydroxy-16,17-[(1-methylethylidene)bis(oxy)]-pregna-1,4-diene-3,20-dione); fluocinonide ((6α,11β,16α)-21-(acetyloxy)-6,9-difluoro-11-hydroxy-16,17-[(1-methylethylidene)bis(oxy)]-pregna-1,4-diene-3,20-dione); fluocortin butyl ((6α,11β,16α)-6-fluoro-11-hydroxy-16-methyl-3,20-dioxopregna-1,4-dien-21-oic acid butyl ester); fluocortolone ((6α,11β,16α)-6-fluoro-11,21-dihydroxy-16-methylpregna-1,4-diene-3,20-dione), its 21-acetate form ($C_{24}H_{31}FO_5$), its 21-hexanoate form ($C_{28}H_{39}FO_5$), or its 21-pivalate form ($C_{22}H_{37}FO_5$); fluorometholone ((6α,11β)-9-fluoro-11,17-dihydroxy-6-methylpregana-1,4-diene-3,20-dione), or its 17-acetate form ($C_{24}H_{31}FO_5$); fluperolone acetate ([11β,17α,17(S)]-17-[2-(acetyloxy)-1-oxopropyl]-9-fluoro-11,17-dihydroxyandrosta-1,4-dien-3-one); fluprednidene acetate ((11β)-21-(acetyloxy)-9-fluoro-11,17-dihydroxy-16-methylenepregna-1,4-diene-3,20-dione); fluprednisolone ((6α,11β)-6-fluoro-11,17,21-trihydroxypregna-1,4-diene-3,20-dione), or its 21-acetate form ($C_{23}H_{29}FO_6$); flurandrenolide ((6α,11β,16α)-6-fluoro-11,21-dihydroxy-16,17-[(1-methylethylidene)bis(oxy)]pregn-4-ene-3,20-dione); fluticasone propionate ((6α,11β,16α,17α)-6,9-difluoro-11-hydroxy-16-methyl-3-oxo-17-(1-oxopropoxy)androsta-1,4-diene-17-carbothioic acid S-(fluoromethyl) ester); formocortal ((11β,16α)-21-(acetyloxy)-3-(2-chloroethoxy)-9-fluoro-11-hydroxy-16,17-[(1-methylethylidene)bis(oxy)]-20-oxopregna-3,5-diene-6-carboxaldehyde); halcinonide ((11β,16α)-21-chloro-9-fluoro-11-hydroxy-16,17-[(1-methyethylidene)bis(oxy)]pregn-4-ene-3,20-dione); halobetasol propionate (6α,11β,16β)-21-chloro-6,9-difluoro-11-hydroxy-16-methyl-17-(1-oxopropoxy)pregna-1,4-diene-3,20-dione); halometasone ((6α,11β,16α)-2-chloro-6,9-difluoro-11,17,21-trihydroxy-16-methylpregna-1,4-diene-3,20-dione), or its monohydrate form ($C_{22}H_{27}ClF_2O_5 \cdot H_2O$); halopredone acetate ((6β,11β)-17,21-bis(acetyloxy)-2-bromo-6,9-difluoro-11-hydroxypregna-1,4-diene-3,20-dione); hydrocortamate (N,N-diethylglycine (11β)-11,17-dihydroxy-3,20-dioxopregn-4-en-21-yl ester), or its hydrochloride form ($C_{27}H_{41}NO_6 \cdot HCl$); hydrocortisone ((11β)-11,17,21-trihydroxypregn-4-ene-3,20-dione), its 21-acetate form ($C_{23}H_{32}O_6$), its 17-butyrate form ($C_{25}H_{36}O_6$), its 21-phosphate disodium salt form ($C_{21}H_{29}Na_2O_8P$), its 21-sodium succinate form ($C_{25}H_{33}NaO_8$), its 17-valerate form ($C_{26}H_{38}O_6$), or its cypionate form; loteprednol etabonate ((11β,17α,)-17-[(ethoxycarbonyl)oxy]-11-hydroxy-3-oxoandrosta-1,4-diene-17-carboxylic acid chloromethyl ester); mazipredone ((11β)-11,17-dihydroxy-21-(4-methyl-1-piperazinyl)pregna-1,4-diene-3,20-dione), or its hydrochloride form ($C_{26}H_{38}N_2O_4 \cdot HCl$); medrysone ((6α,11β)-11-hydroxy-6-methylpregn-4-ene-3,20-dione); meprednisone ((16β)-17,21-dihydroxy-16-methylpregna-1,4-diene-3,11,20-trione), or its 21-acetate form ($C_{24}H_{30}O_6$); methylprednisolone ((6α,11β)-11,17,21-trihydroxy-6-methylpregna-1,4-diene-3,20-dione; Sebek and Spero, US Patent No. 2,897,218, and Gould, US Patent No. 3,053,832), its 21-acetate form ($C_{24}H_{32}O_6$), its 21-phosphate disodium salt form ($C_{22}H_{29}Na_2O_8P$), its 21-succinate sodium salt form ($C_{26}H_{33}NaO_8$), or its aceponate form ($C_{27}H_{36}O_7$); mometasone furoate ((11β,16α)-9,21-dichloro-17-[(2-furanylcarbonyl)oxy]-11-hydroxy-16-methylpregna-1,4-diene-3,20-dione); paramethasone ((6α,11β,16α)-6-fluoro-11,17,21-trihydroxy-16-methylpregna-1,4-diene-3,20-dione), its 21-acetate form ($C_{24}H_{31}FO_6$), its disodium phosphate form, or a mixture of its 21-acetate and disodium phosphate form; prednicarbate ((11β)-17[(ethoxycarbonyl)oxy]-11-hydroxy-21-(1-oxopropoxy)pregna-1,4-diene-3,20-dione);prednisolone ((11β)-11,17,21-trihydroxypregna-1,4-diene-3,20-dione), its 21-acetate form ($C_{23}H_{30}O_6$), its 21-*tert*-butylacetate form ($C_{27}H_{38}O_6$; Sarrett), its 21-hydrogen succinate form ($C_{25}H_{32}O_8$), its 21-succinate sodium salt form ($C_{25}H_{31}NaO_8$), its 21-stearoylgylcolate form ($C_{41}H_{64}O_8$), its 21-*m*-sulfobenzoate sodium salt form ($C_{28}H_{31}NaO_9S$; (11β)-11,17-dihydroxy-21-[(3-sulfobenzoyl)oxy]pregna-1,4-diene-3,20-dione monosodium salt), or its 21-trimethylacetate form ($C_{26}H_{36}O_6$); prednisolone 21-diethylaminoacetate (N,N-diethylglycine (11β)-11,17-dihydroxy-3,20-dioxopregna-1,4-dien-21-yl ester; British Patent No. 862,370), or its hydrochloride form ($C_{27}H_{39}NO_6 \cdot HCl$); prednisolone sodium phosphate (11,17-dihydroxy-21-(phosphonooxy)pregna-1,4-diene-3,20-dione disodium salt); prednisone (17,21-dihydroxypregna-1,4-diene-3,11,20-trione), or its 21-acetate form ($C_{23}H_{28}O_6$); prednival ((11β)-11,21-dihydroxy-17-[(1-oxopentyl)oxy]pregna-1,4-

diene-3,20-dione;), or its 21-acetate form ($C_{28}H_{38}O_7$); prednylidene ((11β)-11,17,21-trihydroxy-16-methylenepregna-1,4-diene-3,20-dione), or its 21-diethylaminoacetate hydrochloride form ($C_{28}H_{39}NO_6$•HCl); rimexolone ((11β,16α,17β)-11-hydroxy-16,17-dimethyl-17-(1-oxopropyl)androsta-1,4-dien-3-one); rofleponide ((22R)-6α,9α-Difluoro-11β,21-dihydroxy-16α,17α-propylmethylenedioxypregn-4-ene-3,20-dione); tipredane ((11β, 17α)-17-(ethylthio)-9α-fluoro-11β-hydroxy-17-(methylthio) androsta-1,4-dien-3-one); tixocortol ((11β)-11,17-dihydroxy-21-mercaptopregn-4-ene-3,20-dione), or its 21-pivalate form ($C_{26}H_{38}O_5S$; (11β)-21-[(2,2-dimethyl-1-oxopropyl)thio]-11,17-dihydroxypregn-4-ene-3,20-dione); triamcinolone ((11β,16α)-9-fluoro-11,16,17,21-tetrahydroxypregna-1,4-diene-3,20-dione), or its 16,21-diacetate form ($C_{25}H_{31}FO_8$; (11β,16α)-16,21-bis(acetyloxy)-9-fluoro-11,17-dihydroxypregna-1,4-diene-3,20-dione); Triamcinolone acetonide ((11β,16α)-9-fluoro-11,21-dihydroxy-16,17-[1-methylethylidenebis(oxy)]pregna-1,4-diene-3,20-dione), its 21-acetate crystal form, its 21-disodium phosphate form ($C_{24}H_{30}FNa_2O_9P$), or its 21-hemisuccinate form ($C_{28}H_{35}FO_9$); triamcinolone benetonide ((11β,16α)-21-[3-(benzoylamino)-2-methyl-1-oxopropoxy]-9-fluoro-11-hydroxy-16,17-[(1-methylethylidene)bis(oxy)]pregna-1,4-diene-3,20-dione); or triamcinolone hexacetonide; ((11β,16α)-21-(3,3-dimethyl-1-oxobutoxy)-9-fluoro-11-hydroxy-16,17-[(1-methylethylidene)bis(oxy)]pregna-1,4-diene-3,20-dione), analogues thereof, or pharmaceutically or veterinarily acceptable salts thereof.

35. The composition of claim 1, wherein the second agent comprises a glucocorticoid steroid selected from budesonide, testosterone, progesterone, estrogen, flunisolide, triamcinolone, beclomethasone, betamethasone, dexamethasone, fluticasone, methylprednisolone, prednisone, hydrocortisone, or mometasone.

36. The composition of claim 1, wherein the first active agent comprises a single stranded anti-sense DNA oligo.

37. The composition of claim 1, wherein the first active agent comprise(s) a double stranded DNA oligo.

38. The composition of claim 1, wherein the first active agent comprises a single stranded anti-sense RNA oligo(s).

39. The composition of claim 1, wherein the first active agent comprises a double stranded RNA oligo(s)

40. The composition of claim 1, which is a systemic or topical formulation.

41. The formulation of claim 40, selected from oral, intrabuccal, intrapulmonary, rectal, intrauterine, intratumor, intracranial, nasal, intramuscular, subcutaneous, intravascular, intrathecal, inhalable, transdermal, intradermal, intracavitary, implantable, iontophoretic, ocular, vaginal, intraarticular, otical, intravenous, intramuscular, intraglandular, intraorgan, intralymphatic, implantable, slow release or enteric coating formulations.

42. The formulation of claim 41, which is an oral formulation, wherein the carrier is selected from solid or liquid carriers.

43. The formulation of claim 42, in the form of a powder, dragees, tablets, capsules, sprays, aerosols, solutions, suspensions and emulsions, or optionally oil-in-water or water-in-oil emulsions.

44. The formulation of claim 41, which is a topical formulation, in the form of cream, gel, ointment, spray, aerosol, patch, solution, suspension or emulsion.

45. The formulation of claim 41, which is an injectable formulation, in the form of an aqueous or alcoholic solution or suspension, an oily solution or suspension, or an oil-in-water or water-in-oil emulsion.

46. The formulation of claim 41, in the form of a rectal or vaginal formulation, optionally a suppository.

47. The formulation of claim 41, in the form of a transdermal formulation, wherein the carrier comprises an aqueous or alcoholic solution, an oily solution or suspension, or an oil-in-water or water-in-oil emulsion.

48. The formulation of claim 47, in the form of an iontophoretic transdermal formulation, wherein the carrier comprises an aqueous or alcoholic solution, an oily solution or suspension, or an oil-in-water or water-in-oil emulsion, and wherein the formulation further comprises a transdermal transport promoting agent.

49. The formulation of claim 41, in the form of an implant, a capsule, a cartridge or a blister.

50. The formulation of claim 49, in the form of an aqueous or alcoholic solution or suspension, an oily solution or suspension, or an oil-in-water or water-in-oil emulsion.

51. The formulation of claim 40, wherein the carrier comprises a hydrophobic carrier.

52. The formulation of claim 51, wherein the carrier comprises lipid vesicles, optionally liposomes; or particles, optionally microcrystals.

53. The formulation of claim 52, wherein the carrier comprises liposomes, and the liposomes comprise the active agent(s).

54. The formulation of claim 41, which is a respirable or inhalable formulation, optionally aerosolizable or sprayable of particle size about 0.05 to about 10 micron.

55. The formulation of claim 54, having a particle size about 0.1 to about 5 micron.

56. The formulation of claim 41, which is a nasal or intrapulmonary formulation, optionally aerosolizable or sprayable of particle size about 8 to about 200 micron.

57. The formulation of claim 56, of particle size about 10 to about 50 micron.

58. The formulation of claim 41, in single or multiple unit form.

59. The formulation of claim 41, in bulk.

60. A therapeutic or prophylactic kit, comprising a delivery device; in separate containers, the active agent(s) of claim 1; and instructions for adding a carrier and preparing a formulation and for use of the kit.

61. The kit of claim 60, wherein the device delivers single metered doses of the formulation.

62. The kit of claim 60, wherein the formulation is a respirable formulation, and the delivery device comprises a nebulizer or a dry powder inhaler.

63. The kit of claim 62, wherein the device comprises a nebulizer or an insufflator and the formulation is provided in a piercable or openable capsule or cartridge.

64. The kit of claim 60, wherein the delivery device comprises a pressurized inhaler and the agent(s) is (are) provided as a suspension, solution or dry formulation of the active agent(s).

65. The kit of claim 60, further comprising, in a separate container, an agent selected from other therapeutic agents, surfactants, anti-oxidants, flavoring agents, fillers, volatile oils, dispersants, antioxidants, propellants, preservatives, buffering agents, RNA inactivating agents, cell-internalized or up-taken agents or coloring agents.

66. The kit of claim 60, comprising, in separate containers, one or more oligos, one or more AIS of formula (Ia), or (Ib) one or more surfactants, a carrier or diluent, optionally other therapeutic agents, and instructions for scheduling the administration of first and second agents.

67. The kit of claim 66, further comprising one or more ubiquinone(s), and instructions for scheduling the administration of first and second agents.

68. The kit of claim 60, wherein the device is a transdermal delivery device, and the kit further comprises a transdermal delivery agent, a transdermal carrier or diluent, and instructions for preparing and delivering a transdermal delivery formulation.

69. The kit of claim 60, wherein the device is an iontophoretic delivery device, and the kit further comprises an iontophoretic agent(s) and instructions for preparing and delivering an iontophoretic formulation.

70. The kit of claim 60, comprising, in separate containers, one or more oligo(s), one or more ubiquinone(s), one or more surfactants, a carrier or diluent, optionally other therapeutic agents, and instructions for scheduling the administration of first and second agents.

71. A method of preventing or treating a respiratory, lung or malignant disease or condition, comprising simultaneously, sequentially or separately administering to a subject in need of treatment, preventative, prophylactic or therapeutic amounts of the first and second active agents of claim 1.

72. The method of claim 71, wherein the oligo(s) and the AIS are administered in amounts effective for alleviating bronchoconstriction and/or lung inflammation or allergy(ies) and/or surfactant depletion or hyposecretion.

73. The method of claim 71, wherein the oligo(s) and the ubiquinone(s) are administered in amounts effective for alleviating bronchoconstriction, lung inflammation or allergies, or ubiquinone or lung surfactant depletion.

74. The method of claim 71, wherein one or more of the agent(s) is (are) administered as a nasal, inhalable, respirable or intrapulmonary composition(s) into the subject's respiratory system.

75. The method of claim 74, wherein one or more of the agents are administered intrapulmonarily or by inhalation.

76. The method of claim 74, wherein the respirable or inhalable composition(s) comprise(s) particles

about 0.05 to about 10 micron in size.

77. The method of claim 74, wherein the nasal or intrapulmonary composition comprises particles about 8 to about 100 micron in diameter.

78. The method of claim 74, wherein the composition(s) is (are) administered as a respirable aerosol.

79. The method of claim 71, wherein the ubiquinone(s) is (are) administered orally, and the oligo(s) and the AIS are administered through the respiratory tract.

80. The method of claim 71, wherein the disease or condition is associated with pulmonary obstruction, bronchoconstriction, lung inflammation or allergy(ies), adenosine hypersensitivity, adenosine or adenosine receptor(s), hyperproduction, or surfactant or ubiquinone hypoproduction.

81. The method of claim 71, wherein the disease or condition comprises pulmonary vasoconstriction, respiratory inflammation or allergies, asthma, impeded respiration, respiratory distress syndrome (RDS), lung pain, cystic fibrosis (CF), allergic rhinitis (AR), apnea, pulmonary hypertension, emphysema, chronic obstructive pulmonary disease (COPD), pulmonary transplantation rejection, pulmonary fibrosis, pulmonary infections, bronchitis, or cancer.

82. The method of claim 71, wherein the disease or condition is associated with respiratory allergies, and the first active agent(s) is anti-sense to the initiation codon, the coding region, the 5'-end or the 3'-end genomic flanking regions, the 5' or 3' intron-exon junctions, or regions within 2 to 10 nucleotides of the junctions of at least one gene(s) encoding, or regulating expression of, an immunoglobulin(s), antibody(ies), or immunoglobulin or antibody receptors, or are anti-sense to the immunoglobulin(s), antibody(ies), or immunoglobulin or antibody receptor mRNA; MTAs of the oligo(s) or combinations thereof.

83. The method of claim 71, wherein the disease or condition is associated with a malignancy or cancer, and the oligo is anti-sense to the initiation codon, the coding region, the 5'-end or the 3'-end genomic flanking regions, the 5' or 3' intron-exon junctions, or regions within 2 to 10 nucleotides of the junctions of an oncogene(s) or at least one gene that regulates expression of, or encodes, a malignancy associated protein, or is(are) anti-sense to the oncogene or malignancy associated mRNA; MTAs or combinations thereof.

84. The method of claim 71, wherein the composition is administered transdermally or systemically.

85. The method of claim 71, wherein the composition is administered orally, intracavitarily, intranasally, intraurethral, intracavernous, intraanally, intravaginally, intrauterally, intraarticularly, transdermally, intrabucally, intravenously, subcutaneously, intramuscularly, intravascularly, intratumorously, intraglandularly, intraocularly, intracranial, into an organ, intravascularly, intrathecally, intralymphatically, intraotically, by implantation, by inhalation, intradermally, intrapulmonarily, intraotically, by slow release, by sustained release and by a pump.

86. The method of claim 71, wherein the mammal(s) is a human or non-human mammal.

87. The method of claim 71, wherein the oligo(s) is (are) administered in amount of about 0.005 to about 150 mg/kg body weight.

88. The method of claim 71, wherein the oligo(s) contain(s) up to about 15%A.

89. The method of claim 71, wherein the oligo(s) is (are) substantially free of A.

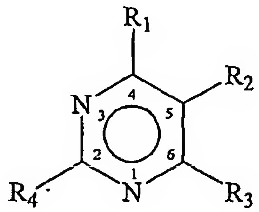
90. The method of claim 71, wherein the target comprises transcription factors, stimulating or activating factors, interleukins, interleukin receptors, chemokines, chemokine receptors, endogenously produced specific or non-specific enzymes, immunoglobulins, antibody receptors, central nervous system (CNS) or peripheral nervous or non-nervous system receptors, CNS and peripheral nervous and non-nervous system peptide transmitters, adhesion molecules, defensines, growth factors, microbial targets, vasoactive peptides, peptide receptors or binding proteins, or malignancy associated proteins.

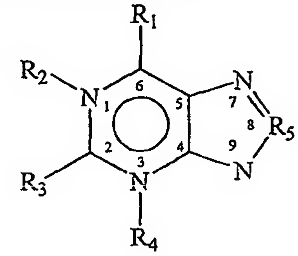
91. The method of claim71, wherein one or more As in the oligo(s) is(are) substituted by a universal base that comprise(s) a heteroaromatic base(s) that bind(s) to thymidine or uridine but has(have) less than about 0.3 of the adenosinebase agonist or antagonist activity at an adenosine A_1, A_{2a}, A_{2b} or A_3 receptor.

92. The method of claim 91, wherein the heteroaromatic base(s) comprise(s) pyrimidines or purines, which may be substituted by O, halo, NH_2, SH, SO, SO_2, SO_3, COOH, branched or fused primary or secondary amino, alkyl, alkenyl, alkynyl, cycloalkyl, heterocycloalkyl, aryl, heteroaryl, alkoxy, alkenoxy, acyl, cycloacyl, arylacyl, alkynoxy, cycloalkoxy, aroyl, arylthio, arylsulfoxyl, halocycloalkyl, alkylcycloalkyl, alkenylcycloalkyl, alkynylcycloalkyl, haloaryl, alkylaryl, alkenylaryl, alkynylaryl, arylalkyl, arylalkenyl, arylalkynyl, arylcycloalkyl, all of which may be further substituted by O, halo, NH_2, primary, secondary or tertiary amine, SH, SO, SO_2, SO_3,

cycloalkyl, heterocycloalkyl or heteroaryl.

93. The method of claim 91, wherein the purines are substituted at positions 1, 2, 3, 6, and/or 8, the pyrimidines are substituted at positions 2, 3, 4, 5 and/or 6 and have the chemical formula





pyrimidines or purines

wherein R^1, R^2, R^3, R^4 and R^5 are independently H, alkyl, alkenyl or alkynyl and R^3 is H, aryl, dicycloalkyl, dicycloalkenyl, dicycloalkynyl, cycloalkyl, cycloalkenyl, cycloalkynyl, O-cycloalkyl, O-cycloalkenyl, O-cycloalkynyl, NH_2-alkylamino-ketoxyalkyloxy-aryl, or mono or dialkylaminoalkyl-N-alkylamino-SO_2aryl, and R^4 and R^5 are independently R^1 and together are R^3, and the pyrimidines and purines optionally comprise theophylline, caffeine, dyphylline, etophylline, acephylline piperazine, bamifylline, enprofylline or xanthine.

94. The method of claim 93, wherein the universal base(s) comprise(s) 3-nitropyrrole-2'-deoxynucleoside, 5-nitro-indole, 2-deoxyribosyl-(5-nitroindole), 2-deoxyribofuranosyl-(5-nitroindole), 2'-deoxyinosine, 2'-deoxynebularine, 6H, 8H-3,4-dihydropyrimido [4,5-c] oxazine-7-one, or 2-amino-6-methoxyaminopurine.

95. The method of claim 71, wherein the second active agent comprises an AIS of formula (Ia) selected from dehydroepiandrosterone, 16-alphabromodehydroepiandrosterone, 16-alpha-fluorodehydroepiandrosterone, etiocholanolone, dehydroepiandrosterone sulfate or other pharmaceutically or veterinarily acceptable salts thereof.

96. The method of claim 71, wherein the second active agent comprises an AIS formula (Ib), wherein R^{15} and R^{16} together are =O; R^5 is —OH; R^5 is —OSO_2R^{20}; R^{15} and R^{20} together is H; or pharmaceutically or veterinarily acceptable salts thereof.

97. The method of claim 71, wherein the active agents are present in an amount of about 0.01 to about 99.99 w/w of the composition.

98. The method of claim 71, wherein the second active agent comprises an AIS selected from 21-acetoxypregnenolone ((3β)-21-(acetyloxy)-3-hydroxypregn-5-en-20-one); alclometasone ((7α, 11β, 16α)-7-Chloro-11, 17, 21-trihydroxy-16-methylpregna-1,4-diene-3,20-dione), or its 17,21-dipropionate form ($C_{28}H_{37}ClO_7$); algestone ((16α)-16,17-dihydroxypregn-4-ene-3,20-dione), its cyclic acetal with acetone form ($C_{24}H_{34}O_4$), or its 16α-methyl ether form ($C_{22}H_{32}O_4$); amcinonide ((11β, 16α)-21-(acetyloxy)-16,17-[cyclopentylidenebis(oxy)]-9-fluoro-11-hydroxypregna-1,4-di-ene-3,20-dione); beclomethasone ((11β,16β)-9-chloro-11,17,21-trihydroxy-16-methylpregna-1,4-diene-3,20-dione), its dipropionate form ($C_{28}H_{37}ClO_7$), or its monopropionate form; betamethasone ((11β, 16β)-9-fluoro-11, 17, 21-trihydroxy-16-methylpregna-1,4-diene-3,20-dione), its 21-acetate form ($C_{24}H_{31}FO_6$), its 21-adamantoate form ($C_{33}H_{43}FO_6$), its 17-benzoate form ($C_{29}H_{33}FO_6$), its 17, 21-dipropionate form ($C_{28}H_{37}FO_7$), its 17-valerate form ($C_{27}H_{37}FO_6$), or its 21-phospate disodium salt form ($C_{22}H_{28}FNa_2O_8P$); budesonide ((11β, 16α)-16,17-[butylidenebis(oxy)]-11, 21-dihydropregna-1,4-diene-3,20-dione); chloroprednisone ((6α)-chloro-17,21-dihydroxypregna-1,4-diene-3,11,20-trione), or its 21-acetate from ($C_{23}H_{27}ClO_6$); ciclesonide; clobetasol ((11β,16β)-21-chloro-9-fluoro-11,17-dihydroxy-16-methylpregna-1,4-diene-3,20-dione), or its 17-propionate form ($C_{25}H_{32}ClFO_5$); clobetasone ((16β)-21-chloro-9-fluoro-17-hydroxy-16-methylpregna-1,4-diene-3,11,20-trione), or its 17-butyrate form ($C_{26}H_{32}ClFO_5$); clocortolone ((6α,11β,16α)-9-chloro-6-fluoro-11,21-dihydroxy-16-methylpregna-1,4-diene-3,20-dione), its 21-acetate form ($C_{24}H_{30}ClFO_5$), or its 21-pivalate form ($C_{27}H_{36}ClFO_5$); cloprednol ((11β)-6-chloro-11,17,21-trihydroxypregna-1,4,6-triene-3,20-dione); coroxon

(phosphoric acid 3-chloro-4-methyl-2-oxo-2H-1-benzopyran-7-yl diethyl ester); cortisone (17,21-dihydroxypregn-4-ene-3,11,20-trione), its 21-acetate form ($C_{23}H_{30}O_6$), or its 21-cyclopentanepropionate form ($C_{29}H_{40}O_6$); cortivazol ((11β,16α)-21-(acetyloxy)-11,17-dihydroxy-6,16-dimethyl-2'-phenyl-2'H-pregna-2,4,6-trieno[3,2-c]pyrazol-20-one); deflazacort ((11β,16β)-21-(acetyloxy)-11-hydroxy-2'-methyl-5'H-pregna-1,4-dieno[17,16-d]oxazole-3,20-dione); desonide ((11β,16α)11,21-dihydroxy-16,17-[(1-methylethylidene)bis(oxy)]pregna-1,4-diene-3,20-dione); desoximetasone ((11β,16α)-9-fluoro-11, 21-dihydroxy-16-methylpregna-1,4-diene-3,20-dione); dexamethasone ((11β,16α)-9-fluoro-11,17,21-trihydroxy-16-methylpregna-1,4-diene-3,20-dione), its 21-acetate form ($C_{24}H_{31}FO_6$), its 21-(3,3-dimethylbutyrate) form ($C_{28}H_{39}FO_6$; Chemerda et al., US Patent No. 2,939,873), its 21-diethylaminoacetate form ($C_{28}H_{41}FNO_6$), its 21-isonicotinate form ($C_{28}H_{41}FNO_6$), its 17,21-dipropionate form ($C_{28}H_{37}FNO_6$), or its 21-palmitate form ($C_{38}H_{59}FO_6$); diflorasone ((6α,11β,16β)-6,9-difluoro-11,17,21-trihydroxy-16-methylpregna-1,4-diene-3,20-dione), or its diacetate form ($C_{26}H_{32}F_2O_7$); diflucortolone ((6α,11β,16α)-6,9-difluoro-11,21-dihydroxy-16-methylpregna-1,4-diene-3,20-dione), or its 21-valerate form ($C_{27}H_{36}F_2O_5$); difluprednate ((6α,11β)-21-(acetyloxy)-6,9-difluoro-11-hydroxy-17-(1-oxobutoxy)pregna-1,4-diene-3,20-dione); enoxolone ((3β,20β)-3-hydroxy-11-oxoolean-12-en-29-oic acid), or its 18α-hydrogen form; fluazacort ((11β,16β)-21-(acetyloxy)-9-fluoro-11-hydroxy-2'-methyl-5'H-pregna-1,4-dieno[17,16-d]oxazole-3,20-dione); flucloronide ((6α,11β,16α)-9,11-dichlro-6-fluoro-21-hydroxy-16,17-[(1-methylethylidene)bis(oxy)]-pregna-1,4-diene-3,20-dione); flumethasone ((6α,11β,16α)-6,9-difluoro-11,17,21-trihydroxy-16-methylpregna-1,4-diene-3,20-dione), its 21-acetate form ($C_{24}H_{30}F_2O_6$), or its 21-pivalate form ($C_{27}H_{36}F_2O_6$); flunisolide ((6α,11β,16α)-6-fluoro-11,21-dihydroxy-16,17-[(1-methylethylidene) bis(oxy)]pregna-1,4-diene-3,20-dione), or its 21-acetate form ($C_{26}H_{33}FO_7$); fluocinolone acetate ((6α,11β,16α)-6,9-difluoro-11,21-dihydroxy-16,17-[(1-methylethylidene)bis(oxy)]-pregna-1,4-diene-3,20-dione); fluocinonide ((6α,11β,16α)-21-(acetyloxy)-6,9-difluoro-11-hydroxy-16,17-[(1-methylethylidene)bis(oxy)]-pregna-1,4-diene-3,20-dione); fluocortin butyl ((6α,11β,16α)-6-fluoro-11-hydroxy-16-methyl-3,20-dioxopregna-1,4-dien-21-oic acid butyl ester); fluocortolone ((6α,11β,16α)-6-fluoro-11,21-dihydroxy-16-methylpregna-1,4-diene-3,20-dione), its 21-acetate form ($C_{24}H_{31}FO_5$), its 21-hexanoate form ($C_{28}H_{39}FO_5$), or its 21-pivalate form ($C_{22}H_{37}FO_5$); fluorometholone ((6α,11β)-9-fluoro-11,17-dihydroxy-6-methylpregana-1,4-diene-3,20-dione), or its 17-acetate form ($C_{24}H_{31}FO_5$); fluperolone acetate ([11β,17α,17(S)]-17-[2-(acetyloxy)-1-oxopropyl]-9-fluoro-11,17-dihydroxyandrosta-1,4-dien-3-one); fluprednidene acetate ((11β)-21-(acetyloxy)-9-fluoro-11,17-dihydroxy-16-methylenepregna-1,4-diene-3,20-dione); fluprednisolone ((6α,11β)-6-fluoro-11,17,21-trihydroxypregna-1,4-diene-3,20-dione), or its 21-acetate form ($C_{23}H_{29}FO_6$); flurandrenolide ((6α,11β,16α)-6-fluoro-11,21-dihydroxy-16,17-[(1-methylethylidene)bis(oxy)]pregn-4-ene-3,20-dione); fluticasone propionate ((6α,11β,16α,17α)-6,9-difluoro-11-hydroxy-16-methyl-3-oxo-17-(1-oxopropoxy)androsta-1,4-diene-17-carbothioic acid S-(fluoromethyl) ester); formocortal ((11β,16α)-21-(acetyloxy)-3-(2-chloroethoxy)-9-fluoro-11-hydroxy-16,17-[(1-methylethylidene)bis(oxy)]-20-oxopregna-3,5-diene-6-carboxaldehyde); halcinonide ((11β,16α)-21-chloro-9-fluoro-11-hydroxy-16,17-[(1-methyethylidene)bis(oxy)]pregn-4-ene-3,20-dione); halobetasol propionate (6α,11β,16β)-21-chloro-6,9-difluoro-11-hydroxy-16-methyl-17-(1-oxopropoxy)pregna-1,4-diene-3,20-dione); halometasone ((6α,11β,16α)-2-chloro-6,9-difluoro-11,17,21-trihydroxy-16-methylpregna-1,4-diene-3,20-dione), or its monohydrate form ($C_{22}H_{27}ClF_2O_5 \bullet H_2O$); halopredone acetate ((6β,11β)-17,21-bis(acetyloxy)-2-bromo-6,9-difluoro-11-hydroxypregna-1,4-diene-3,20-dione); hydrocortamate (N,N-diethylglycine (11β)-11,17-dihydroxy-3,20-dioxopregn-4-en-21-yl ester), or its hydrochloride form ($C_{27}H_{41}NO_6 \bullet HCl$); hydrocortisone ((11β)-11,17,21-trihydroxypregn-4-ene-3,20-dione), its 21-acetate form ($C_{23}H_{32}O_6$), its 17-butyrate form ($C_{25}H_{36}O_6$), its 21-phosphate disodium salt form ($C_{21}H_{29}Na_2O_8P$), its 21-sodium succinate form ($C_{25}H_{33}NaO_8$), its 17-valerate form ($C_{26}H_{38}O_6$), or its cypionate form; loteprednol etabonate ((11β,17α,)-17-[(ethoxycarbonyl)oxy]-11-hydroxy-3-oxoandrosta-1,4-diene-17-carboxylic acid chloromethyl ester); mazipredone ((11β)-11,17-dihydroxy-21-(4-methyl-1-piperazinyl)pregna-1,4-diene-3,20-dione), or its hydrochloride form ($C_{26}H_{38}N_2O_4 \bullet HCl$); medrysone ((6α,11β)-11-hydroxy-6-methylpregn-4-ene-3,20-dione); meprednisone ((16β)-17,21-dihydroxy-16-methylpregna-1,4-diene-3,11,20-trione), or its 21-acetate form ($C_{24}H_{30}O_6$); methylprednisolone ((6α,11β)-11,17,21-trihydroxy-6-methylpregna-1,4-diene-3,20-dione; Sebek and Spero, US Patent No. 2,897,218, and Gould, US Patent No. 3,053,832), its 21-acetate form ($C_{24}H_{32}O_6$), its 21-phosphate disodium salt form ($C_{22}H_{29}Na_2O_8P$), its 21-succinate sodium salt form ($C_{26}H_{33}NaO_8$), or its aceponate form ($C_{27}H_{36}O_7$); mometasone furoate ((11β,16α)-9,21-dichloro-17-[(2-furanylcarbonyl)oxy]-11-hydroxy-16-methylpregna-1,4-diene-3,20-dione); paramethasone ((6α,11β,16α)-6-

fluoro-11,17,21-trihydroxy-16-methylpregna-1,4-diene-3,20-dione), its 21-acetate form ($C_{24}H_{31}FO_6$), its disodium phosphate form, or a mixture of its 21-acetate and disodium phosphate form; prednicarbate ((11β)-17[(ethoxycarbonyl)oxy]-11-hydroxy-21-(1-oxopropoxy)pregna-1,4-diene-3,20-dione); prednisolone ((11β)-11,17,21-trihydroxypregna-1,4-diene-3,20-dione), its 21-acetate form ($C_{23}H_{30}O_6$), its 21-*tert*-butylacetate form ($C_{27}H_{38}O_6$; Sarrett), its 21-hydrogen succinate form ($C_{25}H_{32}O_8$), its 21-succinate sodium salt form ($C_{25}H_{31}NaO_8$), its 21-stearoylgylcolate form ($C_{41}H_{64}O_8$), its 21-*m*-sulfobenzoate sodium salt form ($C_{28}H_{31}NaO_9S$; (11β)-11,17-dihydroxy-21-[(3-sulfobenzoyl)oxy]pregna-1,4-diene-3,20-dione monosodium salt), or its 21-trimethylacetate form ($C_{26}H_{36}O_6$); prednisolone 21-diethylaminoacetate (N,N-diethylglycine (11β)-11,17-dihydroxy-3,20-dioxopregna-1,4-dien-21-yl ester; British Patent No. 862,370), or its hydrochloride form ($C_{27}H_{39}NO_6$•HCl); prednisolone sodium phosphate (11,17-dihydroxy-21-(phosphonooxy)pregna-1,4-diene-3,20-dione disodium salt); prednisone (17,21-dihydroxypregna-1,4-diene-3,11,20-trione), or its 21-acetate form ($C_{23}H_{28}O_6$); prednival ((11β)-11,21-dihydroxy-17-[(1-oxopentyl)oxy]pregna-1,4-diene-3,20-dione;), or its 21-acetate form ($C_{28}H_{38}O_7$); prednylidene ((11β)-11,17,21-trihydroxy-16-methylenepregna-1,4-diene-3,20-dione), or its 21-diethylaminoacetate hydrochloride form ($C_{28}H_{39}NO_6$•HCl); rimexolone ((11β,16α,17β)-11-hydroxy-16,17-dimethyl-17-(1-oxopropyl)androsta-1,4-dien-3-one); rofleponide ((22R)-6α,9α-Difluoro-11β,21-dihydroxy-16α,17α-propylmethylenedioxypregn-4-ene-3,20-dione); tipredane ((11β, 17α)-17-(ethylthio)-9α-fluoro-11β-hydroxy-17-(methylthio) androsta-1,4-dien-3-one); tixocortol ((11β)-11,17-dihydroxy-21-mercaptopregn-4-ene-3,20-dione), or its 21-pivalate form ($C_{26}H_{38}O_5S$; (11β)-21-[(2,2-dimethyl-1-oxopropyl)thio]-11,17-dihydroxypregn-4-ene-3,20-dione); triamcinolone ((11β,16α)-9-fluoro-11,16,17,21-tetrahydroxypregna-1,4-diene-3,20-dione), or its 16,21-diacetate form ($C_{25}H_{31}FO_8$; (11β,16α)-16,21-bis(acetyloxy)-9-fluoro-11,17-dihydroxypregna-1,4-diene-3,20-dione); Triamcinolone acetonide ((11β,16α)-9-fluoro-11,21-dihydroxy-16,17-[1-methylethylidenebis(oxy)]pregna-1,4-diene-3,20-dione), its 21-acetate crystal form, its 21-disodium phosphate form ($C_{24}H_{30}FNa_2O_9P$), or its 21-hemisuccinate form ($C_{28}H_{35}FO_9$); triamcinolone benetonide ((11β,16α)-21-[3-(benzoylamino)-2-methyl-1-oxopropoxy]-9-fluoro-11-hydroxy-16,17-[(1-methylethylidene)bis(oxy)]pregna-1,4-diene-3,20-dione); or triamcinolone hexacetonide;((11β,16α)-21-(3,3-dimethyl-1-oxobutoxy)-9-fluoro-11-hydroxy-16,17-[(1-methylethylidene) bis(oxy)]pregna-1,4-diene-3,20-dione), or pharmaceutically or veterinarily acceptable salts thereof.

99. The method of claim 71, wherein the second active agent comprises an AIS selected from budesonide, testosterone, progesterone, estrogen, flunisolide, triamcinolone, beclomethasone, betamethasone, dexamethasone, fluticasone, methylprednisolone, prednisone, hydrocortisone, or mometasone.

100. A method of enhancing the prophyllactic or therapeutic respiratory effect of an anti-inflammatory steroid in a subject, comprising administering to the subject, in addition to the AIS, the oligonucleotide(s) (oligo(s)) of claim 1, the AIS and the oligo(s) being administered in amounts effective for reducing or depleting levels of, or reducing sensitivity to, adenosine, reducing levels of adenosine receptors, producing bronchodilation, increasing levels of ubiquinone or lung surfactant in a subject's tissue (s), or treating bronchoconstriction, lung inflammation or lung allergies or a respiratory or lung disease or condition.

101. The method of claim 100, further administering to the subject a ubiquinone of the chemical formula.

102. The method of claim 100, wherein the steroid comprises budesonide, testosterone, progesterone, estrogen, flunisolide, triamcinolone, beclomethasone, betamethasone, dexamethasone, fluticasone, methylprednisolone, prednisone, hydrocortisone, or mometasone

103. The method of claim 100, wherein the oligo(s) is anti-sense to the initiation codon, the coding region, the 5'-end or the 3'-end genomic flanking regions, the 5' or 3' intron-exon junctions, and regions within 2 to 10 nucleotides of the junctions of at least one oncogene(s) and a gene(s) enclding or regulating expression of a target polypeptide(s) associated with lung airway dysfunction, or anti-sense to the corresponding mRNA and the polypeptide mRNA; combinations, MTAs or mixtures of the oligos; the polypeptides comprising peptide factors and transmitters, antibodies, cytokines or chemokines, enzymes, binding proteins, adhesion molecules, their receptors, or malignancy associated proteins.

104. The method of claim 100, further comprising administering to the subject other therapeutic or bioactive agents selected from analgesics, pre-menstrual medications, menopausal agents, anti-aging agents, anti-anxyolytic agents, mood disorder agents, anti-depressants, anti-bipolar mood agents, anti-schyzophrenic agents, anti-cancer agents, alkaloids, blood pressure controlling agents, muscle relaxants, steroids, soporific agents, anti-

ischemic agents, anti-arrythmic agents, contraceptives, vitamins, minerals, tranquilizers, neurotransmitter regulating agents, wound healing agents, anti-angyogenic agents, cytokines, growth factors, B-adrenergic receptor agonists, anti-metastatic agents, antacids, anti-histaminic agents, anti-bacterial agents, anti-viral agents, anti-gas agents, appetite suppressants, sun screens, emollients, skin temperature lowering products, radioactive phosphorescent or fluorescent contrast diagnostic or imaging agents, libido altering agents, bile acids, laxatives, anti-diarrheic agents, skin renewal agents, hair growth agents, analgesics, pre-menstrual medications, anti-menopausal agents, hormones, anti-aging agents, anti-anxiolytic agents, nociceptic agents, mood disorder agents, anti-depressants, anti-bipolar mood agents, anti-schizophrenic agents, anti-cancer agents, alkaloids, blood pressure controlling agents, other hormones, other anti-inflammatory agents, agents for treating arthritis, burns, wounds, chronic bronchitis, chronic obstructive pulmonary disease (COPD), inflammatory bowel disease such as Crohn's disease, ulcerative colitis, autoimmune disease, or lupus erythematosus, muscle relaxants, soporific agents, anti-ischemic agents, anti-arrhythmic agents, contraceptives, vitamins, minerals, tranquilizers, neurotransmitter regulating agents, wound and burn healing agents, anti-angiogenic agents, cytokines, growth factors, anti-metastatic agents, antacids, anti-histaminic agents, anti-bacterial agents, anti-viral agents, anti-gas agents, agents for reperfusion injury, counteracting appetite suppressants, sun screens, emollients, skin temperature lowering products, radioactive phosphorescent or fluorescent contrast diagnostic or imaging agents, libido altering agents, bile acids, laxatives, anti-diarrheic agents or skin renewal agents.

105. The method of claim 100, wherein the oligo(s) and/or the steroid(s) is(are) administered with surfactant protein A, surfactant protein B, surfactant protein C, surfactant protein D and surfactant Protein E, di-saturated phosphatidyl choline (other than dipalmitoyl), dipalmitoyl phosphatidyl choline, phosphatidyl choline, phosphatidyl glycerol, phosphatidyl inositol, phosphatidyl ethanolamine, phosphatidyl serine; phosphatidic acid, ubiquinones, lysophosphatidyl ethanolamine, lysophosphatidyl choline, palmitoyl- lysophosphatidyl choline, dehydroepiandrosterone, dolichols, sulfatidic acid, glycerol-3-phosphate, dihydroxyacetone phosphate, glycerol, glycero-3-phosphocholine, dihydroxy acetone, palmitate, cytidine diphosphate (CDP) diacyl glycerol, CDP choline, choline, choline phosphate; natural or artificial lamellar bodies as carrier surfactant vehicles, omega-3 fatty acids, polyenic acid, polyenoic acid, lecithin, palmitinic acid, non-ionic block copolymers of ethylene or propylene oxides, polyoxypropylene, monomeric or polymeric, polyoxyethylene, monomeric and polymeric, poly (vinyl amine) with dextran and/or alkanoyl side chains, Brij 35, Triton X-100 or synthetic surfactants ALEC, Exosurf, Survan or Atovaquone.

106. The method of claim 100, wherein the AIS comprises a steroid of chemical formula (Ia) or (Ib).

107. The method of claim 106, wherein the AIS is selected from budesonide, testosterone, progesterone, fluticasone, beclomethasone, prednisone, momethasone, estrogen, dexamethasone, hydrocortisone, triamcinolone, flunisolide, methylprednisolone prednisone, hydrocortisone, or analogues thereof.

108. The method of claim 100, wherein the first and second active agents are administered systemically or topically.

109. The method of claim 100, wherein the first and second active agents are administered as an oral, intrabuccal, intrapulmonary, rectal, intrauterine, intratumor, intracranial, nasal, intramuscular, subcutaneous, intravascular, intrathecal, inhalable, transdermal, intradermal, intracavitary, implantable, iontophoretic, ocular, vaginal, intraarticular, otical, intravenous, intramuscular, intraglandular, intraorgan, intralymphatic, implantable, slow release or enteric coating formulation.

110. The method of claim 101, wherein the ubiquinone is administeredorally.

107. The method of claim 106, wherein the oligo(s) and the AIS is(are) administered intrapulmonarily, into the respiration, nasally, or by inhalation.

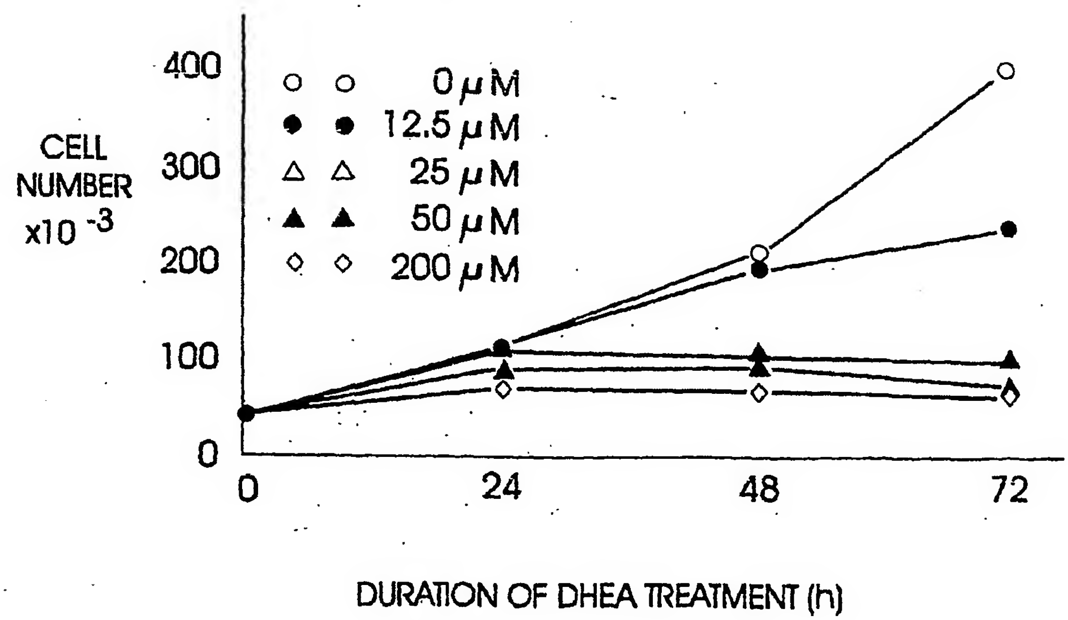
108. The method of claim 106, wherein the oligo(s) or the AIS is(are) administered as a respirable or inhalable formulation, optionally an aerosol of particle size about 0.05 to about 10 micron.

109. The method of claim 107, wherein the formulation comprises an oligo(s) or AIS of particle size about 0.1 micron to about 5 micron.

110. The method of claim 106, wherein the oligo(s) or the AIS is(are) administered nasallym intrapulmonarily, optionally an aerosol of particle size about 8 to about 100 micron..

111. The method of claim 109, wherein the oligo(s) or the AIS has(have) a particle size about 10 to about 50 micron.

FIG. 1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200
100
0
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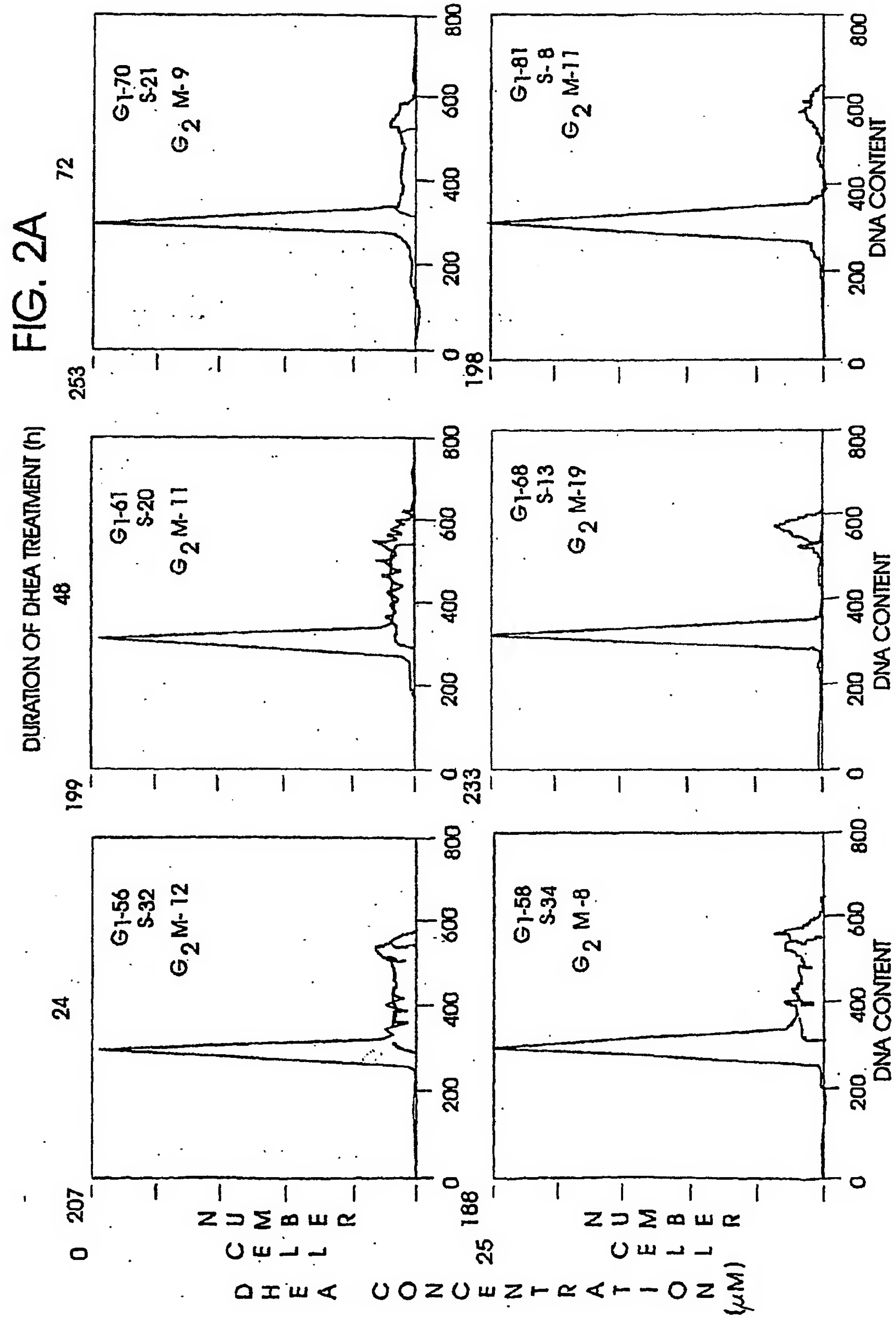
12.5 μM
25 μM
50 μM
200 μM
0
24
48
72
DURATION OF DHEA TREATMENT (h)


DURATION OF DHEA TREATMENT (h)
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48
72
DHEA CONCENTRATION (μM)
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25
CELL NUMBER
DNA CONTENT
G1-56 S-32 G2 M-12
G1-61 S-20 G2 M-11
G1-70 S-21 G2 M-9
G1-58 S-34 G2 M-8
G1-68 S-13 G2 M-19
G1-81 S-8 G2 M-11
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198
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600
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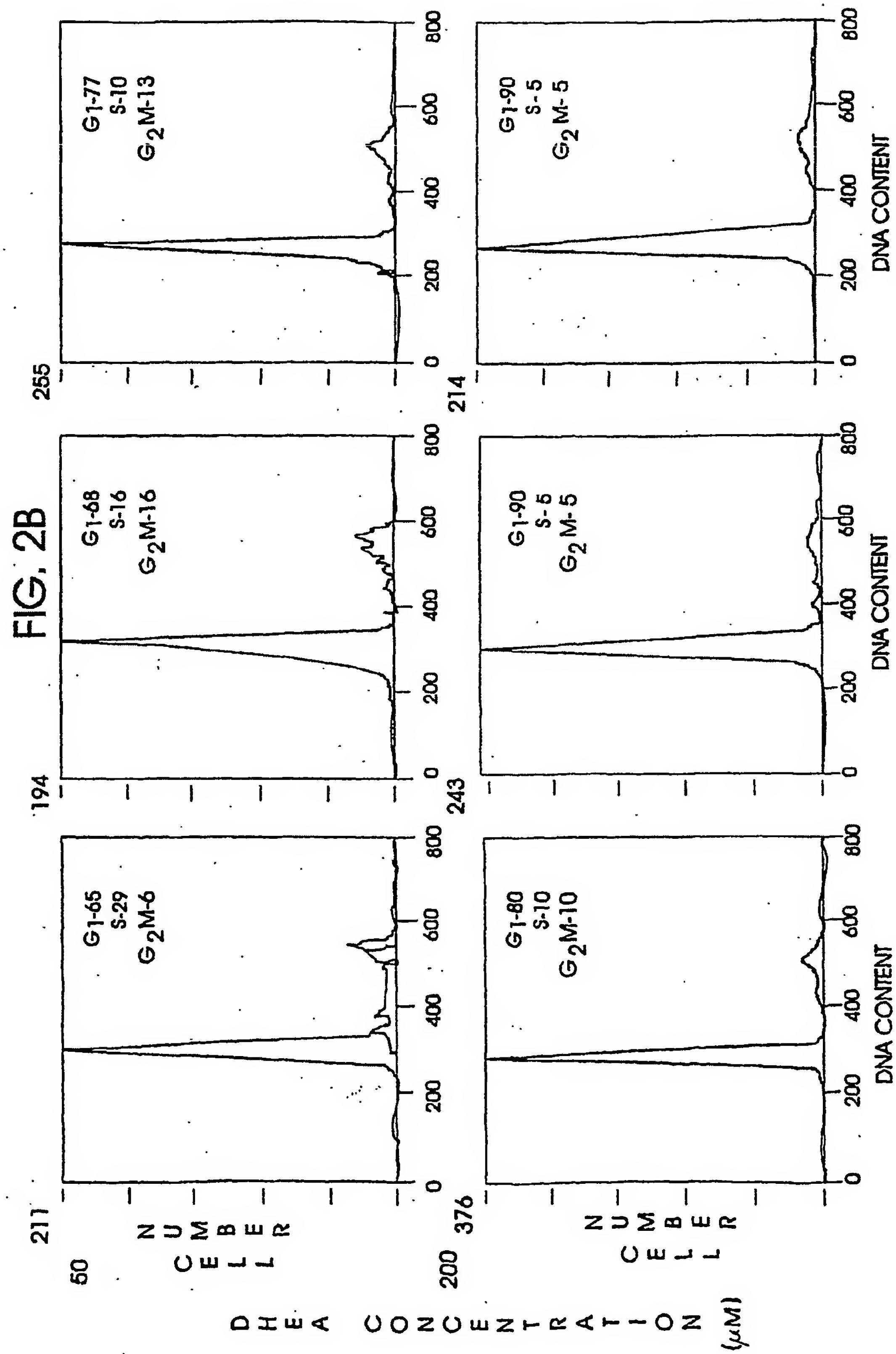
FIG. 2A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S-5
G2M-5
G1-80
S-10
G2M-10
255
194
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214
243
376
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200
400
600
800
DNA CONTENT
NUMBER
CELL
50
200
DHEA CONCENTRATION (μM)

FIG. 2B

FIG. 3A

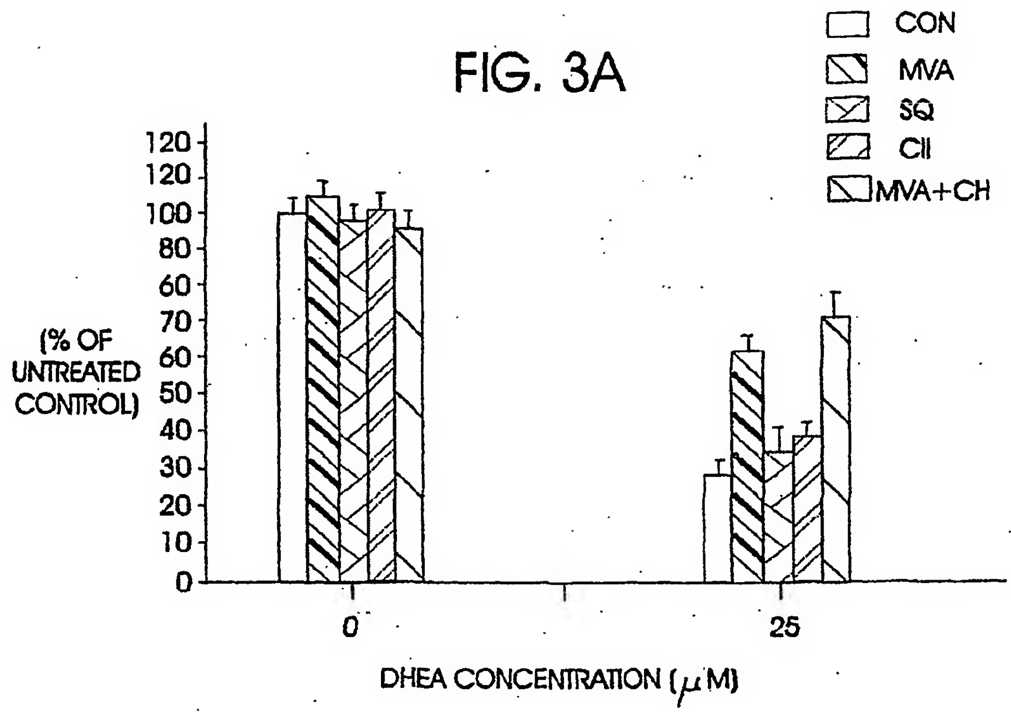

CON
MVA
SQ
CII
MVA+CH
120
120
100
80
60
70
60
50
40
30
20
10
0
(% OF
UNTREATED
CONTROL)
0
25
DHEA CONCENTRATION (μM)

FIG. 3B

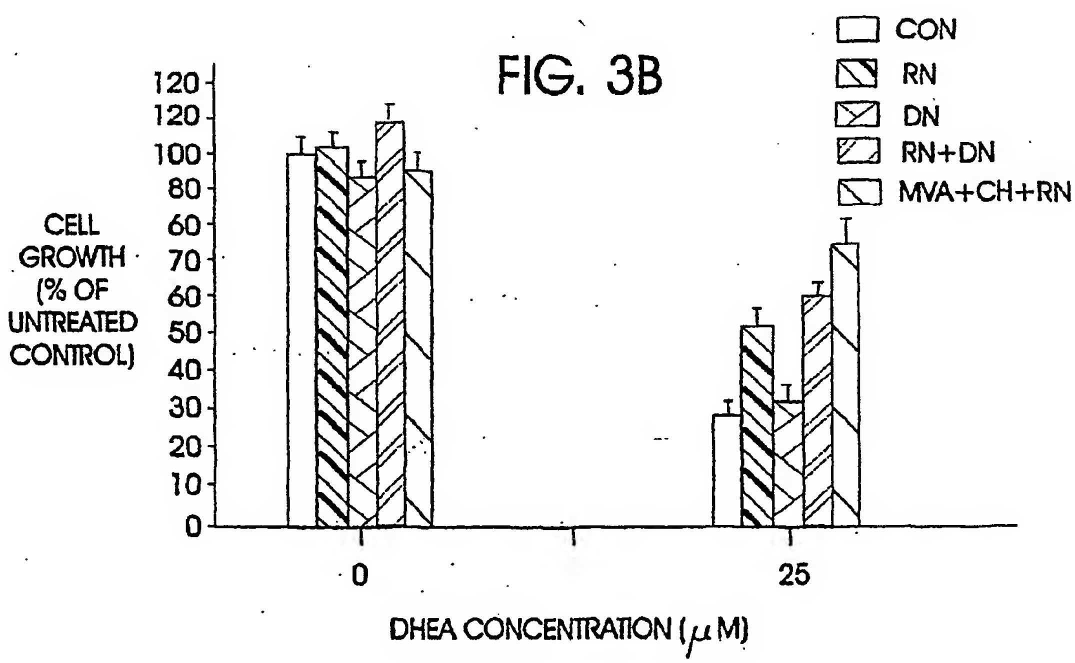

CON
RN
DN
RN+DN
MVA+CH+RN
120
120
100
80
60
70
60
50
40
30
20
10
0
CELL
GROWTH
(% OF
UNTREATED
CONTROL)
0
25
DHEA CONCENTRATION (μM)

FIG. 4A

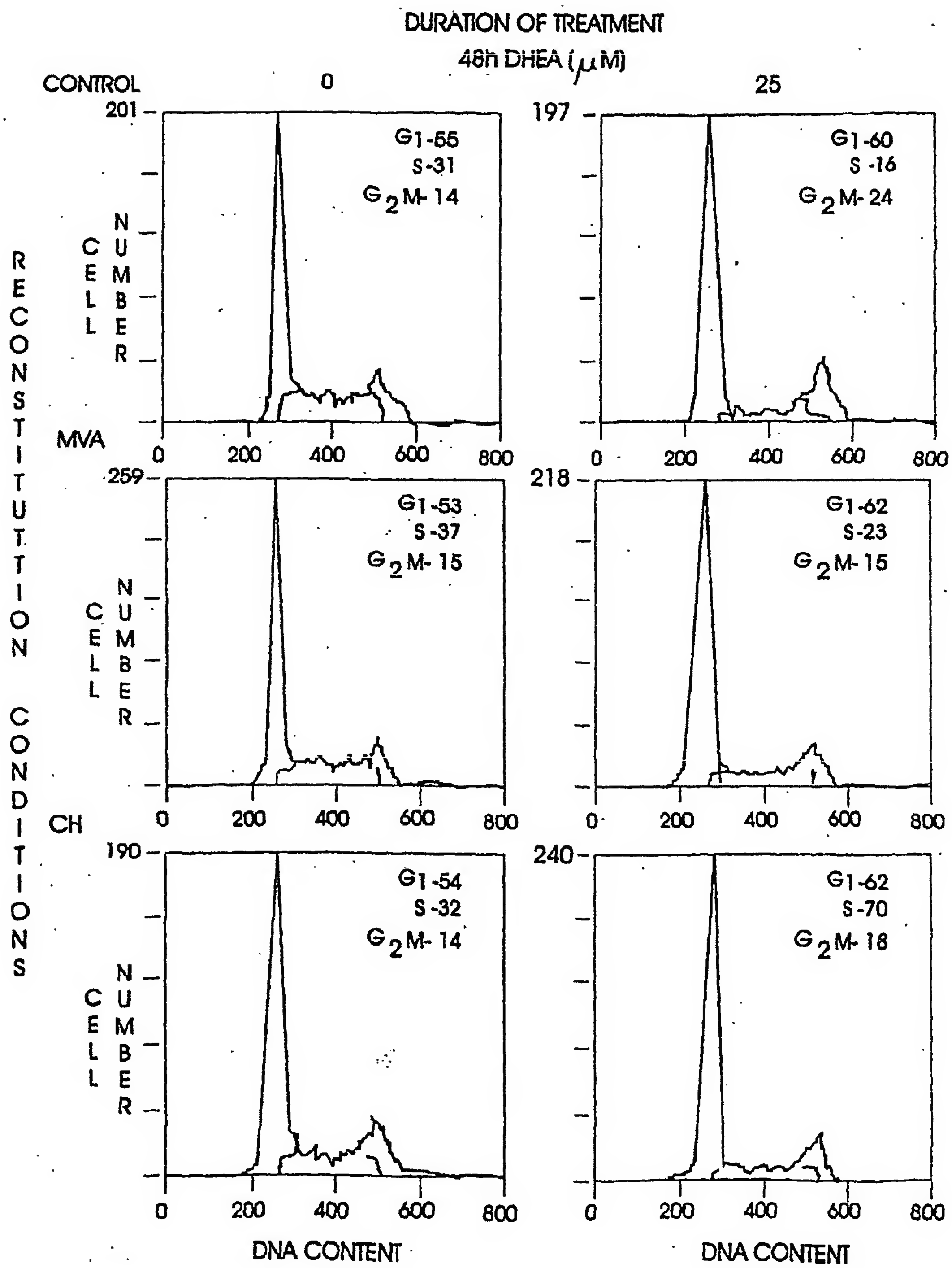

DURATION OF TREATMENT
48h DHEA (μM)
CONTROL
0
25
RECONSTITUTION CONDITIONS
CELL NUMBER
DNA CONTENT
MVA
CH
201
197
259
218
190
240
0
200
400
600
800
G1-55
S-31
G2M-14
G1-60
S-16
G2M-24
G1-53
S-37
G2M-15
G1-62
S-23
G2M-15
G1-54
S-32
G2M-14
G1-62
S-70
G2M-18

FIG. 4B

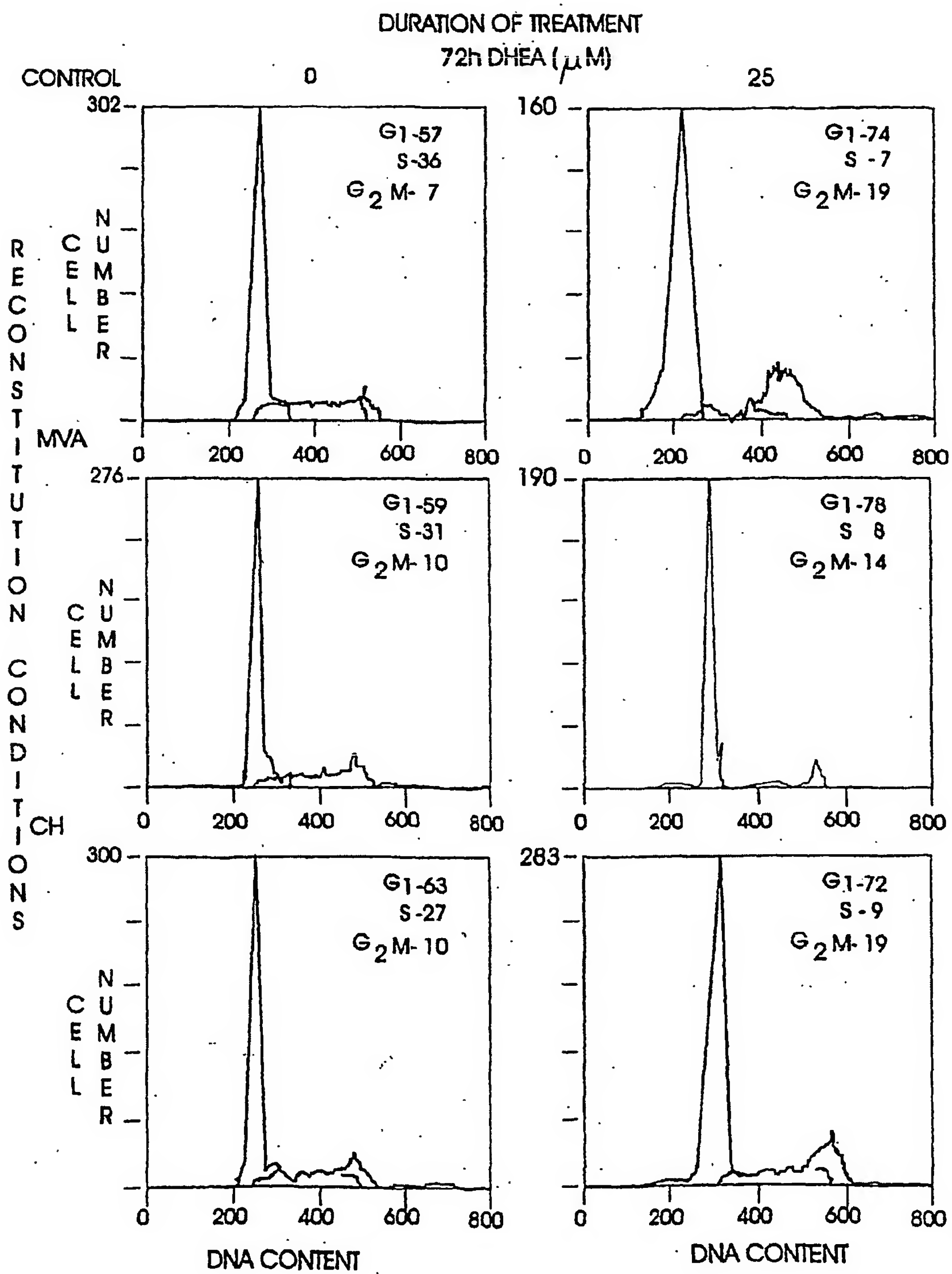

DURATION OF TREATMENT
72h DHEA (μM)
CONTROL
0
25
RECONSTITUTION CONDITIONS
MVA
CH
CELL NUMBER
DNA CONTENT
302
G1-57
S-36
G2M- 7
160
G1-74
S - 7
G2M- 19
276
G1-59
S-31
G2M- 10
190
G1-78
S 8
G2M- 14
300
G1-63
S-27
G2M- 10
283
G1-72
S - 9
G2M- 19
0
200
400
600
800

FIG. 4C

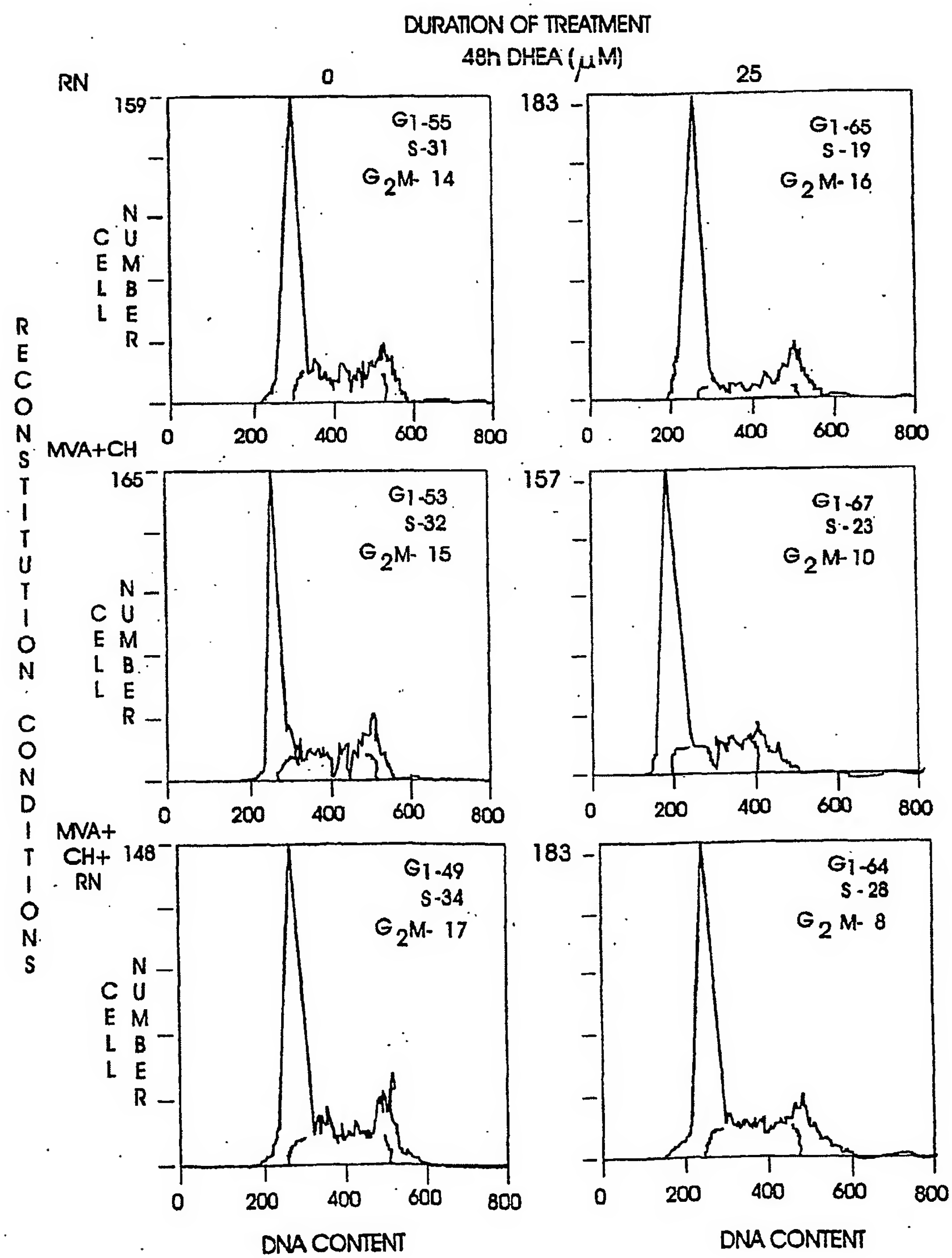
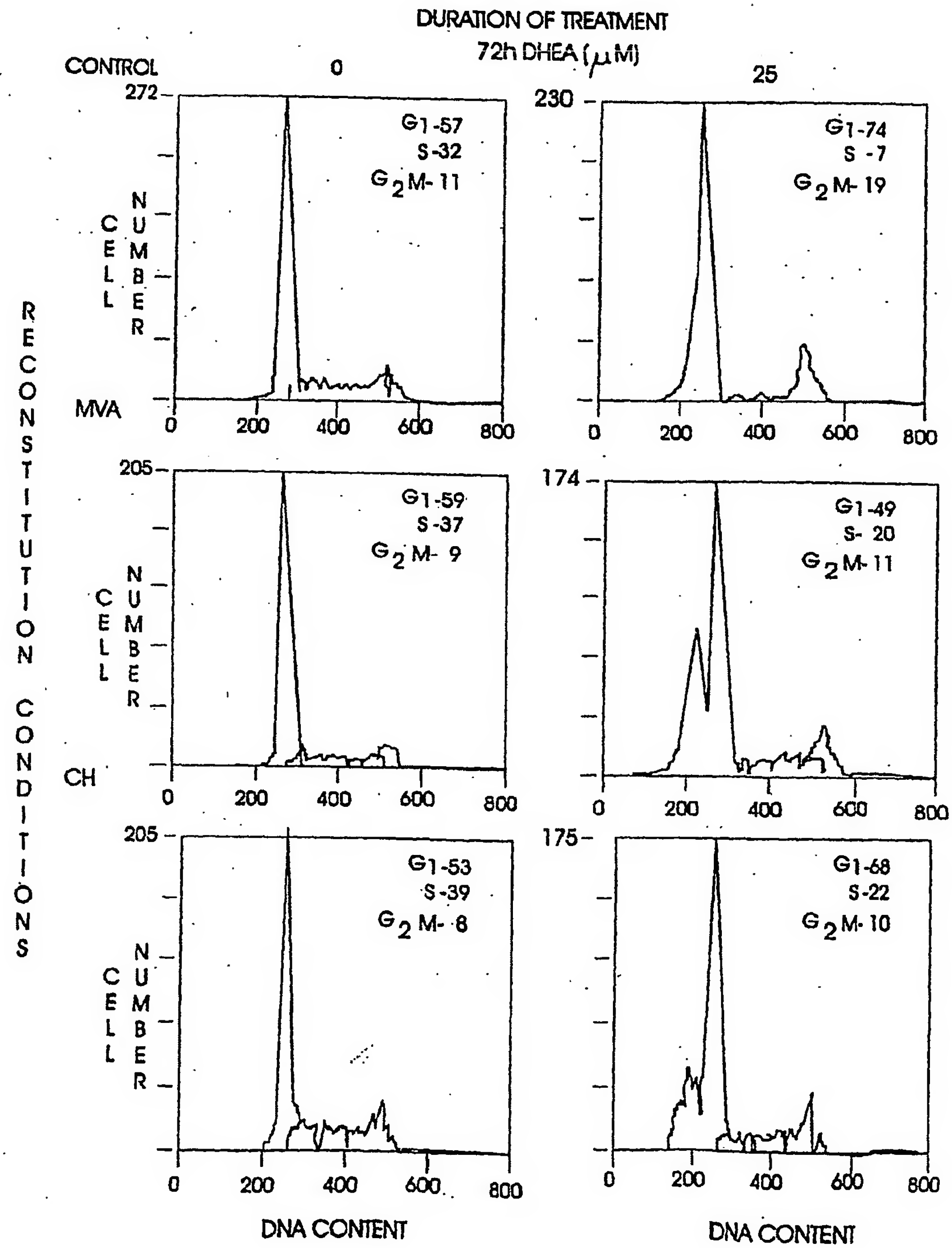

DURATION OF TREATMENT
48h DHEA (μM)
0
25
RN
MVA+CH
MVA+ CH+ RN
RECONSTITUTION CONDITIONS
CELL NUMBER
159
183
165
157
148
183
G1-55
S-31
G2M- 14
G1-65
S-19
G2M-16
G1-53
S-32
G2M- 15
G1-67
S-23
G2M-10
G1-49
S-34
G2M- 17
G1-64
S-28
G2 M- 8
0
200
400
600
800
DNA CONTENT

FIG. 4D


DURATION OF TREATMENT
72h DHEA (μM)
CONTROL
0
25
RECONSTITUTION CONDITIONS
CELL NUMBER
MVA
272
G1-57
S-32
G2M-11
230
G1-74
S -7
G2M-19
CH
205
G1-59
S-37
G2M- 9
174
G1-49
S- 20
G2M-11
205
G1-53
S-39
G2M- 8
175
G1-68
S-22
G2M-10
0
200
400
600
800
DNA CONTENT
DNA CONTENT